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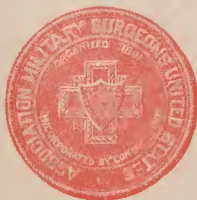


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Original Memoirs.

THE PROPHYLAXIS OF VENEREAL DISEASES.

By COLONEL VALERY HAVARD,

ASSITANT SURGEON GENERAL IN THE UNITED STATES ARMY.

THE prevalence and terrible effects of venereal diseases in all civilized countries have been more fully realized, of late years, not only by the medical profession but by all persons taking an intelligent interest in the physical and moral welfare of the race, and the very important subject of the prevention of these diseases, too long studiously kept in the background, is now imposing itself upon public attention.

In 1899, an International Conference for the prophylaxis of venereal diseases, attended by the leading specialists and other representative men from nearly all civilized countries, met in Brussels, Belgium. From it sprang the *Société internationale de prophylaxie sanitaire et morale*. A second International Conference, as it were, the continuation of the first, met in the same city, in 1902, also largely attended, where these diseases were again thoroughly discussed, in the light of greater knowledge and experience, and useful resolutions passed.

Meanwhile, the subject was likewise arousing attention in the United States, especially in the metropolitan city of New York. In 1900, a Committee of Fifteen was appointed by the mayor of New York from among the leading citizens, to investigate sexual vice from the moral, municipal and police standpoints and submit recommendations for its restriction or prevention. A member of the committee studied the whole question of prostitution, in a general way, and produced a comprehensive, scholarly book, "The Social Evil", which embodies the views of the committee. In 1901, a Committee of Seven was appointed by the Medical Society of the County of New York for the "study of measures

for the prophylaxis of venereal diseases," with Dr. Prince A. Morrow as chairman. Its report (*Med. News*, Dec. 21, 1901) is a very valuable exposition of the best medical thought on the subject in this country.

The writer of this paper, having been chairman of the board which reorganized the "Service of the Hygiene of Prostitution" in Cuba, in 1900; having also had the privilege of attending the second Brussels conference, in 1902; and otherwise given a good deal of attention to the literature of the prophylaxis of venereal diseases, has formed more or less definite opinions thereon, which he submits to his fellow members of the Association.

To understand the nature and extent of the ravages of the evil in question it is necessary to collate statistics. Unfortunately, as we know, in no other class of diseases are statistics less reliable. Although venereal diseases are all contagious and a great, constant menace to society, there is no law in any country requiring that they be reported to sanitary authorities, and were such a law enacted it would be a dead letter and remain inoperative. Even in city hospitals, where one would expect complete and correct records, we generally find that when diagnoses are not entirely omitted, they are mostly unintelligible and of no scientific value. In a New York public hospital, "it has been ordained that these diseases appear not under their true names, but disguised under a variety of aliases which do not betray their venereal origin" (Committee of Seven). Deaths, the direct or indirect result of syphilis or gonorrhea, are carefully ascribed, in our mortuary records, to any but the correct cause. What family physician would betray his trust and make public the nature of a shameful complaint? Specialists would seem to be in a position to form approximate estimates of the prevalence of these diseases, but even among them there is such diversity of opinions that one realizes more than ever the difficulties of the problem.

The only statistics sufficiently reliable to afford us useful information and from which we may draw conclusions, are those of the armies and navies of civilized nations; but even military statistics are often only mere approximations; they admit of liberal interpretation and must be used with discretion; they simply

give the number of admissions to hospital, or of cases otherwise excused from duty; but we know that in all armies and navies a certain number of cases are treated without being excused from duty, therefore without being recorded. Furthermore, it is also incontestable that a notable proportion of cases, often amounting to 25-50 and more per cent., do not report to the military surgeons, but, for reasons unnecessary to mention, seek treatment at the hands of civilian physicians, visit advertising quacks or else treat themselves. On the other hand, it is true that a certain number of cases are returned to duty and again readmitted, so that they are counted more than once; such cases, however, are infrequent and can in no way offset those remaining unregistered. We may safely accept, as a guiding principle, that army and navy statistics much underrate the exact status of cases and should be accepted only as a minimum.

ARMIES.

In the German army, venereal diseases have, of late years, been steadily diminishing. Thus from 29 cases per 1000 men in 1894-1895, the ratio had fallen to 21 in 1897-1898. This decrease affects the several diseases to nearly the same extent; thus syphilis which contributed 9 per 1000 in the period 1886-1891, was only 4.4 in 1897-98.

In Belgium, there has also been a marked decrease, from 60 per 1000 during the period 1875-1882 to 27.5 in 1900, the syphilitic cases falling quite in the same proportion and now ranging from 5 to 7.

In the French army, the same decrease is noted; from 66 per 1000 in 1880 to 32.5 in 1898; greater in gonorrheal cases, the proportion of syphilis having only fallen from 7.8 in 1895 to 6.9 in 1896, 6.5 in 1897 and 6.8 in 1898.

In Austria, the admission rate for the period 1891-96 was 61. In 1888, the ratio of syphilitic cases per 1000 was 18.9 and in 1891, 19.1; later records are not at hand.

In Italy, these diseases fell steadily from 120 per 1000 in 1863-65, to 47.5 in 1887. In 1888, through the influence of English propaganda, the reglementation of prostitution having been abolished, the ratio rose at once. For the year ending

March, 1888, it was 42.5, while for the year ending March 1889, it was 102.3 or more than double. In Milan alone, for the year ending October, 1889, there was, over the previous year, an increase of 1654 admissions, 504 of which were for syphilis. This rapid increase over the whole peninsula, quickly following the abolition of the official regulation of prostitution, became so obvious and alarming that it was deemed necessary to reestablish it in 1891; this was done, however, in a rather weak, ineffective manner so that the rate of venereal diseases has remained comparatively high.

In Russia, the ratio of syphilitic cases for the period 1889-93 ranged from 10.4 to 12 per 1000; more extended or later statistics are not available.

In Great Britain, according to the reports of the Army Medical Department, during the period 1870-82, prostitution in certain garrison towns was under sanitary control, while in others it was entirely unrestricted. The result was that in the former towns (under control) the ratio of admissions was only 50 per 1000 men, while in the latter (unrestricted) it was 118. In 1883, the compulsory examination of prostitutes having ceased in all Great Britain, the rate in the towns previously under control rose to 110, and to 138 in 1884. In the whole United Kingdom, the proportion of venereal diseases admitted to hospital (therefore probably not including minor cases) for the period 1889-98 was 180.8 per 1000, with 85 for syphilis; in 1898 it fell down to 132.7 with 57.2 for syphilis, and in 1899 to 122.4 with 51.3 for syphilis.

The effect of reglementation was strikingly shown at Cape Town (South Africa) as well as in India. At Cape Town, the yearly average for the period 1884-88, before prostitution was regulated, was 674 per 1000, while after the enforcement of compulsory examination (in 1889) the ratio fell to 349 for the period 1889-97.

In India, when all reglementation was abolished, in 1888, a frightful increase took place at once; in 1895, out 36,681 admissions to hospitals, 22,702 were for syphilis. In 1897, certain protective measures, such as the removal of prostitutes beyond

military boundaries, the examination of those voluntarily submitting, &c., having been adopted, their good effect was shown at once by a reduction in the rate of admissions, the figures for 1899 being 313.5 (namely 129.3 for syphilis 63.1 for soft chancre and 121.1 for gonorrhea) the lowest known since 1890.

In the Argentine Republic, the rates for 1901 were 119, namely gonorrhea 62, syphilis 33 and chancroids 24. But these figures have varied very much, from year to year, according to the extent camp women were examined and treated. Thus, in 1895, all prostitutes in Santa Catalina, as well as enlisted men, having been subjected to examination, the ratio for syphilis fell from 20 to 1 per cent., a whole regiment not showing a single case (*Anales de Sanidad Militar, Arg. Rep.*)

In the United States, the rate of admissions during the normal peaceful decade 1889-1898 was 71.45 per 1000. With the reorganization and increase of the army made necessary by the Spanish War, the rate rose steadily and, for the year ending June 30, 1900, was (for troops in the United States) 127.35, namely 13.49 for syphilis, 26.57 for chancroids and 87.29 for gonorrhea. It has continued to increase: thus, for the year ending June 30, 1901, it was 155.39, namely 19.62 for syphilis, 33.35 for chancroids and 102.42 for gonorrhea. For the year 1902, according to the last report of the Surgeon General, it was 160.94, namely 22.37 for syphilis, 31.99 for chancroids and 106.58 for gonorrhea.

NAVIES.

In the navies of the great powers, statistics, although very imperfect, justify the belief that, as a general rule, venereal diseases are even more prevalent than in their respective armies. One of the principal reasons for this must be the greater opportunities enjoyed by sailors and marines to visit women entirely free from sanitary control. Thus France reports a rate of 76.30 per 1000 in 1899 and 73.21 in 1900; Germany, 105.1 in 1892; Austria, 87.3 in 1893; Italy, 126.7 in 1894; Holland, 283 in 1893; England, 282 in the period 1892-94. The United States reports 51.6 for the period 1896-1902; this ratio is evidently too low and untrustworthy.

CIVIL LIFE.

The above statistics afford some idea of the prevalence of venereal diseases among soldiers and sailors, that is, mostly men between the ages of 20 and 25. It is much more difficult to obtain information concerning their frequency in civil life. Here statistics fail and we must rely chiefly on the estimates of specialists. These estimates would seem to indicate that, in cities, the proportion of venereal diseases among the same class of men is not any less, but probably much greater than among soldiers. Thus, according to Blaschko, there is in Berlin about 10 per cent., and according to Erbs, 12.02 per cent. of syphilis among adult males. This would imply from 40 to 50 per cent. of venereal diseases of all kinds. It is well known that in the German army the highest figure is reached in October, month of the incorporation of recruits. The *Bulletin de la Société de Prophylaxie Sanitaire et Morale* admits that the adult male population of Paris contains 13 to 16 per cent. of syphilis. If, according to Fournier, one-seventh of the whole population of Paris is syphilitic, the proportion among male adults must be raised to at least 25 per cent.

In New York, Dr. Sanger, in his *History of Prostitution*, computed that, in 1857, there were 106 cases of venereal diseases per 1000 of population. In 1874, Dr. F. R. Sturgis estimated the proportion of syphilitic cases at 54 per 1000; practically the same proportion (55) is given in an appendix to Dr. Sanger's book, in 1892. If we multiply Dr. Sturgis' estimate by 4, we shall obtain the approximate total ratio of venereal diseases, 216 per 1000, which apparently prevailed from 1874 to 1892 and later. The Committee of Seven, on what would seem to be fair data, computed that, during the year 1900, about 225,000 cases of venereal diseases were treated in Greater New York. The population in that year being 3,500,000, we obtain a ratio of 64 per 1000, or less than a third the ratio of Sturgis. Are we to conclude that the morals of New York have undergone a sudden reformation? This is not likely, judging from the 412 replies received by the committee to the question, "Are venereal diseases on the increase in this city (New York)?" more than half being affirmative. All physicians who have charge of venereal clinics in New York have

been impressed with evidences of the growth of juvenile vice during the past few years. It is much more probable that statistics are at fault, owing to the extreme difficulty of finding, and giving just value to all the factors of such complex problem.

If the figures of the committee approximate the truth even distantly, then we may boast that our metropolitan city, and presumably other large U. S. cities, are several times freer from venereal diseases than the capitals and large cities of Europe. But, on the other hand, we are confronted by the fact that, as compared with other countries, our army shows the highest ratio of these diseases. Thus, while our civil population would appear to rank highest in the world scale of sexual morality, our military population stands lowest. Can such contradiction be explained, or does it really exist? I shall not attempt to answer.

Several reasons can be adduced why venereal diseases should be at least as prevalent in civil life, among the male adult population, as in military life; perhaps the strongest is the relative poverty of a great majority of soldiers; they draw but little pay or none at all, and therefore cannot indulge in much or expensive dissipation; they mostly frequent cheap prostitutes, that is precisely those who, on the continent of Europe, are subjected to regimentation and, therefore, much less dangerous than their clandestine and more attractive sisters. There is no doubt that the greater ratio of venereal diseases among English and American soldiers is due not only to the absence of regimentation but also to their much more liberal pay.

The above statistics, although fragmentary and not as accurate as could be wished, yet suffice to give us a fair idea of the fearful prevalence of venereal diseases in all civilized communities, of their terrible ravages, not only among adult males but also among innocent women and children, and of their baneful effect upon the human race.

SANITARY PROPHYLAXIS.

Venereal diseases being the direct result of sexual vice, is it the duty of the state to take any action for the restraint of prostitution, and, if so, to what extent is such action desirable and equitable?

Attempts have been made in various countries and at different times to abolish prostitution, but all laws and penal enactments to that effect, however, strictly enforced, have been futile, and it is now generally recognized that the "social evil," like other violations of the moral law, can only be regulated and mitigated but not stamped out. Prostitution then, being one of the inevitable evils of modern civilization and always a great menace to society, it would seem to be the clear duty of the state to take cognizance of it and enforce all just and reasonable measures to restrict and render it as little obnoxious as possible, and thus protect the people, so far as is practicable, against the dangers of venereal infection.

Because a vice is particularly shameful and repugnant, it should not on that account be ignored and allowed to grow unchecked. The sense of self-defense as well as the experience of ages teach that the best results are obtainable by surrounding the practice of prostitution by police and sanitary regulations, so as to keep it within certain limits, even if such regulations imply official recognition and toleration. In other words it is lawful for the state or for the individual to permit a smaller evil in order to prevent a greater one; it is lawful and the best policy to tolerate houses of prostitution if, thereby, we are able to exercise some degree of control over them and thus prevent the worst evils of sexual debauchery.

Many excellent people, whose influence on legislative bodies is distinctly felt, especially in England and America, believe and contend that no government has the right or the duty to recognize and regulate prostitution; that it cannot recognize it without compacting with vice and defiling itself, nor regulate it without exceeding the bounds of its legitimate authority.

These so-called abolitionists started their crusade against the sanitary regulation of prostitution in England where they obtained the strongest support and still wield the greatest influence. Thence they extended their propaganda chiefly to Italy, Norway, Holland and the United States. The English government yielded everything to their demands, and prostitution was left uncontrolled and officially unnoticed. The result is told in the statis-

tics presented above, and still more graphically by Robert Donald, editor of the London *Municipal Journal*:—"A stranger in London would at once conclude that the city was the most immoral on the face of the earth. In no city are there such disgraceful scenes in the streets at night. Immoral women take possession of a number of West End streets every evening, and carry on their traffic unmolested. They come from all over Europe, and enjoy complete liberty, apparently under the protection of the police. Their presence in such numbers is the ugliest blot on the government of London. Citizens are deprived of the free use of their streets, and respectable ladies could not patronize any of the West End restaurants for supper. The traffic is not confined to the best-known streets. There are perpetual processions on the pavement in all the principal London thoroughfares. * * * * *

The result is that immoral women have as much right in the streets as the policeman. They have their regular beats, just like him. So long as they walk they are free to do what they like, but they must not stand and obstruct the pavement. They are then committing an offense which the police recognise—obstruction—and they will be told to move on. As their chief business is to move on, this is not a great hardship. The doctrine, therefore, of free trade has been extended to prostitution."

The arguments of the opponents of the sanitary regulation of prostitution are that it is an immoral policy; that, at best, only a small proportion of women, less than half, can be reached; that the examinations are perfunctory, carelessly done and too infrequent to be useful; that prostitutes, when submitting to reglementation, have already practiced their traffic several years and passed through the contagious manifestations of syphilis; finally, that a sense of security is given to some men who otherwise would be deterred from debauchery for fear of infection.

As to the morality of tolerating houses of prostitution in order to subject them to sanitary control, enough has already been said. It is my opinion that such control is useful, preventive of much disease, and therefore lawful and in the interest of the state. It is a case where the end justifies the means.

We must admit that the other arguments of the abolitionists

contain more or less truth and carry weight with them. The reglementarists admit the imperfections of their system, as generally applied, and are quite willing and desirous to improve it; at the Brussels Conference they offered to meet the abolitionists on some middle ground of possible agreement, but the latter stood by their principles and were uncompromising. It is enough for us to recognize that, according to the practical experience of nations, sanitary reglementation, even with all its alleged defects, gives much better results than free prostitution. This was strikingly shown in Havana where a complete system of reglementation was instituted, or rather where the existing Spanish system was reformed and perfected, early in the American occupation. The result was that a city, proverbially addicted to pleasure, has probably a smaller rate of venereal diseases than any other city of its size. Thus, in 1900, the number of women registered and examined was 852, of whom less than one tenth were found diseased. Of the 8000 members (all males) of the Covadonga Mutual Association, only 213 came under treatment for venereal diseases, or 2.66 per cent., such treatment being free to all members.

Official reglementation, that is to say, the registration and sanitary examination of prostitutes, is the ideal system in theory, and wherever it can be properly applied, the best in practice; but its application necessarily meets with many difficulties, and unless these can be thoroughly overcome, the results are not satisfactory. To be successful, it must be not only approved by the medical profession but also sustained by the moral sanction of a great majority of the people; such sanction, for reasons we need not discuss, cannot be obtained in this country. A law establishing reglementation could not be enforced, or only partially and very imperfectly, and therefore would be worse than useless. In this respect, venereal diseases cannot expect to fare better than small-pox. The experience of generations of physicians has proven the absolute efficiency of vaccination against small-pox, and yet the only countries where vaccination is compulsory are Germany, France and Cuba, the countries, let it be said in passing, where reglementation finds most favor. In the same manner, were physicians substantially agreed that reglementation could stamp

out venereal diseases, I do not believe it could be enforced in the United States.

The Committee of Fifteen takes a decided stand against state relementation. Its members, however, are not to be classed with the English abolitionists for they strongly advocate the moral and police regulation of vice and, to that end, submit a series of most valuable recommendations.

The Committee of Seven, to the question "What measures are best adapted to limit or prevent the dissemination of venereal diseases?" received 1065 answers, 340 of which, or about one third, advocating relementation. The Committee recognizes its partial efficacy, but considers the system, as practiced in Europe, defective and incomplete and, furthermore, of impossible application in this country.

If the examination of prostitutes cannot be made compulsory, must it be entirely given up? No, the good effects of it may be obtained to a very appreciable extent by the system of voluntary examination; that is, by explaining to these women the advantages of such examination and inviting them to submit to it. The obligatory feature is what runs counter to the American sense of personal liberty, and I doubt whether voluntary examination would arouse much effective opposition. Such examination already exists in various countries, including our own, prostitutes being impelled to it by one of the strongest impulses of human nature, self-interest. The card of the medical examiner is the means of attracting more and better clients, and she finds honesty, in this regard, to be her most profitable policy.

Under the circumstances, the system of sanitary prophylaxis which appears most practicable and beneficial may be outlined as follows:—

First, let the State, county and municipality recognize the existence of venereal diseases, as they do other infectious diseases, and not ignore or screen them because of their peculiar character. Let them recognize the fact that they far outnumber the total of all other infectious diseases and are, therefore, the most immediately dangerous to the public. Let them provide enough free dispensaries for the examination of all venereal men and women

who now go without treatment or enrich advertising quacks. From this class of poor patients the infection is largely spread. In these dispensaries, there should be a department for the systematic weekly examination of all women desiring it for their own protection and that of their clients. There is no reason why such examination could not be made by female physicians. Enough hospital accommodations should be provided for all acute infectious cases, for among the poor no other form of treatment is efficient.

Accommodations for venereal cases are now sadly lacking in most of our public hospitals, especially for patients in the first or most infective stage, when treatment is most necessary to avoid dissemination and complications. They are often readily admitted later when suffering from the effects or sequels of their disease. As very well said by the Committee of Seven, hospitals proclaim to this class of patients "We cannot receive you when your disease is acute and curable, but when your gonorrhea has developed into stricture, salpingitis, peritonitis, or when your syphilis has affected important central organs, the brain, the spine, the organs of special sense, you may be received, but your disease shall be baptized under another name which does not offend the refined susceptibilities of our patrons." One large dispensary in New York has no genito-urinary department because "The trustees will not foster vice by curing the diseases produced by ungodly conduct."

The system of voluntary examination will be easier and more efficient if prostitutes are allowed to congregate in houses and be more or less under the control of a matron, for the latter has every interest to maintain the good sanitary reputation of her establishment and will induce or even compel the women under her charge to seek examination and treatment.

The same plan might be profitably applied to camps and military posts. We know the character of the many places of amusement surrounding large garrisons, the number of prostitutes hovering round and lying in wait for our careless, often unsuspecting soldiers. It would not be impossible to induce a certain proportion of these women, perhaps a majority, to submit to examination in

exchange for a white card duly stamped, and perhaps some little privilege of toleration by the police or military authorities.

The voluntary system is certainly a long step in the right direction, but progress can be hastened and much better results obtained if, at the same time, boards of health are empowered to apply and enforce all reasonable sanitary regulations—and, for the purpose, to employ a special body of inspectors. One of these regulations, and perhaps the most important, should require all venereal patients to seek treatment, either privately or in hospitals, and this, at the hands of reputable, duly licensed physicians. This regulation should specifically require keepers of brothels to report at once all cases of disease among the inmates. It should also provide that any prostitute reported to the board of health, by any body, as being diseased, may, in the judgement of the board, be subjected to examination and segregation. Any power given boards of health would be futile if not including that of forcible detention of prostitutes in hospital for a limited period, long enough to cover the most infective stage.

In the army and navy, it is possible to subject the men to a weekly or fortnightly examination, as is done in Germany and France, all men found diseased being kept in hospital or confined to the limits of the garrison. There is no question of the efficacy of this sanitary measure. It was carried out in some of our regiments in Cuba with immediate beneficial results, and I also understand that it has been found very useful in the Philippines. Whether it is desirable to introduce such a measure as a permanent regulation in our service is doubtful, but there will be times and places when it will be found one of the most efficient weapons with which to combat the venereal enemy.

MORAL PROPHYLAXIS.

Under this heading, first comes the fundamental question of education, that is to say, the development of character, uprightness, self-restraint, honesty and morality; all those qualities which ensure health, honor and success. It is clearly the duty of the state to foster in every possible way the acquisition of these qualities by the boys and girls for whose mental training it provides

so liberally. Is the state doing its duty in this regard? The answer to this vital question has no place here.

The Committee of Fifteen takes a decided stand against the prostitution of minors, recommending their coercive confinement in asylums and reformatories. Young girls who fall from virtue, do so mostly from penury and ignorance. Had they been able to find suitable work and received good counsel when the first temptations came, or soon after succumbing, when the shame of it was still upon them, it is certain that many would have been saved or redeemed. Any good influence which would keep them from falling into vice until they have enough knowledge and experience to realize the meaning of a life of prostitution would probably save most of them. Relatively few women begin after they are 20 years old. When we realize that these young prostitutes are particularly prone to infection and the chief propagators of venereal diseases, the necessity of severe coercive measures becomes obvious. On this subject, there was substantial agreement at the Brussels Conference; it resolved, by a large majority, that it was the duty of the state to enact a law making prostitution a crime for all women under 18. Any girl under that age, caught in a house of ill-fame, soliciting in public places, or in any act of prostitution, should be arrested, brought before a competent judge and, if it be found that her parents or tutors are unable or unwilling to take proper care of her, sentenced to reclusion, not in a prison, but a special reformatory institution, until she reaches the age of 18. The state, however, can accomplish but little if unaided; such vital work of reform calls for the best efforts of society, and of all civil and religious associations organized in view of social purification.

It is well known that prostitution is to a large extent dependent upon poverty and promiscuous overcrowding, and that every effort made to improve the material condition of the poorer classes tends to elevate them morally. The influence of a clean comfortable home over the minds and hearts of its inmates cannot be overestimated. Let all tenements and lodging-houses for workmen, laborers and artisans have plenty of air and enough space to secure a reasonable degree of privacy; only thus can children, in the

crowded dwellings of the poor, be saved from their greatest dangers, the sight of sexual vice and hearing of obscene language. In this respect, New York and other American cities are distinctly behind most European cities, the municipalities of the New World being apparently more inclined to favor the landlords than the tenants; as a consequence, tenement-house prostitution has long been one of the crying evils of our large cities.

Probably nothing demoralizes youth more than indecent literature, plays and exhibitions. Freedom in this respect runs riot and everywhere degenerates into license. The lowering and sensualizing of the stage during the last quarter of a century is one of the evil signs of the time. Hardly a play which does not appeal to the lower instincts of the public by gross or veiled suggestiveness, and which an honest man can not attend without loss of self-respect. In this matter the supply is according to the demand and no remedy need be expected from the public; only strict state or municipal censorship can be of much avail.

Let the state repress relentlessly all obtrusive incitement to debauch; prostitutes cannot be suppressed but they should never be allowed to flaunt themselves or exercise their seductive arts on the street or in any other public place; thus a better moral atmosphere is maintained and many young men saved from temptation and ruin.

Strict laws should be enacted to prevent prostitution from becoming a part of the business of certain hotels, lodging-houses and saloons, the usual resorts of clandestine prostitutes and dangerous traps for the unwary.

It is also one of the important duties of municipalities to provide suitable forms of amusement for the poorer classes, such as parks, baths, museums, libraries, gymnasiums, etc. which men can be induced to frequent who, otherwise, would be attracted by the garish saloon and other places of dissipation.

DIFFUSION OF KNOWLEDGE CONCERNING THE VENEREAL PERIL.

The Brussels Conference passed the following resolution unanimously: "One of the most important and efficacious means to combat the propagation of venereal diseases is to diffuse, as wide-

ly as possible, the knowledge relative to their nature, importance and gravity”.

As a general principle, this resolution met with no objection, but when it came to the discussion of details in its application, there appeared the usual divergence of views. To whom was this knowledge to be imparted? Evidently not to young boys; to speak to them of such subjects would be waking up instincts and desires still dormant or undeveloped and gratify much unhealthy curiosity. I believe, with Prof. Fournier, that the minimum age to receive such instruction should be 18. In colleges, it could be made a part of the course on hygiene, if there be any, given to the junior or senior class. It is necessary to add that it should be given by a competent physician, for there is hardly any subject about which half or imperfect knowledge is so dangerous. As to the general public, this instruction is simply impossible without conveying it also, however indirectly, to youth of both sexes, a result which nothing could justify. But it is quite possible to reach certain classes of grown, mature men, such as factory hands, miners and night-school pupils.*

No class of men need this knowledge more than soldiers and sailors, not only for their own preservation but also for the safety of the colonies where they may be stationed. It is a sad fact that venereal diseases are now prevalent in many interior places, in the Philippines, where they were unknown before the American occupation. A plain talk by the surgeon to each company at his post, or to the sailors and marines on his ship, would doubtless have excellent results. It should include those hygienic measures indicated after the disease is contracted, to mitigate the effects and prevent the propagation of it. Here the question may be asked, whether this instruction to soldiers and sailors should also include those direct means of prophylaxis to be used before and after sexual relations, as is being done, for example, by a certain num-

*I wish to call attention to an excellent little pamphlet "The Boy's Venereal Peril", by Dr. Ferd. C. Valentine of New York, for the use of young men, under the guidance of parents, teachers or physicians. I know of nothing better for the purpose.—Press of the American Medical Association. 103 Dearborn Ave. Chicago.

ber of surgeons in the French army and navy. My own inclination is strongly for the negative. It is putting medical officers in a very undignified position of particeps criminis, somewhat like putting a key in the hand of a thief that he may rob without breaking the window and attracting the policeman. There is no doubt that the fear of contracting disease keeps many men away from prostitutes; here, as has been said, fear is the beginning of wisdom; but if soldiers and sailors are given a fancied sense of security by the use of certain measures recommended by their medical officers, one of the restraining barriers is broken down and it is very probable that the result would be an increase of immorality without any decrease of disease.

The War Department fully realizing the beneficial effect of suitable instruction to young soldiers, has caused the publication of a booklet, "The Venereal Peril" which has been distributed to all companies in the Army.

FRACTURE OF THE PATELLA TREATED BY PERMANENT EXTENSION.

TWO cases of fracture of the patella were treated by A. Reuterskiöld (*Tidskrift i Militar Hälsovård*) according to the method of G. Neumann with the result that after ten weeks the fracture was practically healed and the joint movable. After six weeks the patients left their beds and walked with a cane. In one of the cases there was a separation of three to four fingers breadth between the fragments at the time of the accident; the next day the fragments were already closely approximated. The treatment allows massage of the quadriceps and is very easily applied.—HANS DAAE.

DISLOCATION FIRST METATARSAL BONE DOWN-
WARDS AND OUTWARDS INTO PLANTAR ARCH
DIRECT REDUCTION THROUGH OPENING
MADE BY INCISION. RECOVERY.

By HENRY W. SAWTELLE, M.D.

SURGEON IN THE UNITED STATES PUBLIC HEALTH AND MARINE
HOSPITAL SERVICE.

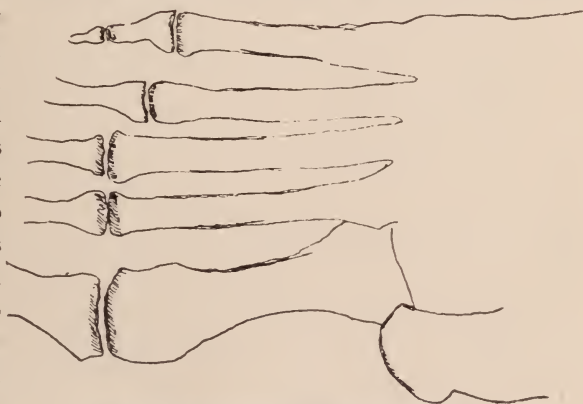
BUT little reference is made to this rather unusual form of injury in the surgical literature at my command, and the following particulars of a case may not be without interest. The patient is a surfman of one of the United States Life Saving Stations, 28 years of age, a strong, robust man, weighing 200 pounds. He was admitted to the U.S. Marine Hospital at Chicago, Illinois, June 5, 1902, four hours after the injury, and stated that on jumping into the surf boat that morning for drill, the dorsum of right foot struck the gunwale heavily over the first metatarsal bone. He pulled his oar, however, a short time after the accident, or until the exercises were over, and upon rising he was unable to stand on the injured foot.

On admission there was considerable swelling over the dorsum, the contour of the inner border was abnormal, the proximal end of the first metatarsal was not palpable, and the internal cuneiform was unduly prominent.

The following day reduction was attempted under chloroform anesthesia without success, and an X-ray picture obtained, a tracing of which accompanies this paper, showing that the proximal end of the first metatarsal was forced downwards and outwards into the plantar arch, and the distal end of the internal cuneiform upwards and inwards. The separation of the internal cuneiform from the other bones was doubtless due to wedge action of the first metatarsal when driven downwards, and to traction upwards by the tibialis anticus.

On June 7 another attempt at reduction by manipulation was made, the patient being under the influence of an anaesthetic, which also proved unsuccessful, and on June 9, five days after the reception of the injury, reduction was effected through an

opening made by incision. The patient was etherized and an incision seven centimetres in length was made down to the first metatarsal, the proximal end of which was found firmly lodged in the plantar arch, requiring the use of a strong metal retractor, together with much more force than one would consider necessary for the reduction of such a dislocation. This was undoubtedly made necessary, largely, by the contraction of the peroneus longus, which is inserted into the outer side of the base of the bone. This view is apparent from the fact that when reduced and traction was suspended, the bone would slip back again to its former abnormal place; and to ensure retention in the normal position, it was wired to the internal cuneiform.



Tracing of Skiagraph of Outward and Downward Dislocation of First Metatarsal Bone.

Aseptic dressings were applied, and the foot was placed in a plaster cast. Anticipating that the trauma to which the plantar tissues were subjected in the necessarily forcible reduction would give rise to some destruction of tissue, the wound was partly left open for drainage. There was quite a free discharge of serous fluid until the plantar cavity filled up, but no pus infection. The wire sutures came away spontaneously in two weeks, and the patient made a good recovery, with no untoward symptoms except a severe dermatitis on the dorsum of foot caused by the application of liniments made by friends at the time of the accident. The patient was discharged August 1, 1902, and soon thereafter returned to full duty as a surfman.

Under date of January 5, 1903, Dr. William A. Kimmet, Acting Assistant Surgeon, to whom I am indebted for assistance in the treatment of the case, reports that he examined the man in October, 1902, and found the tarso-metatarsal joint firm, so that the patient walked without limping.

THE NEEDS AND EQUIPMENT OF REGIMENTAL
HOSPITALS OF THE NATIONAL GUARD FOR
DUTY IN THE FIELD, PRACTICE MARCHES,
STRIKE DUTY, AND GUARD DUTY IN
THE ARMORY.

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ICAL INSTRUCTOR IN SURGERY UNIVERSITY
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IT is not at all remarkable that, with the attitude that many officers of the army have maintained toward the Medical Department and the manner with which Congress has at times regarded the Sanitary Service of the Army, it has not been allowed before any war that we have had in this country to make suitable preparation to the end that the sick and wounded could receive proper care in every contest. In times of peace, although soldiers in the army are well and require comparatively little attention, the authorities do not seem to realize that this is nothing in the world but a time for preparation for what is really the serious work. The troops are drilled daily, exercised and gotten into the pink of condition, every preparation made, and yet, while there is plenty of time, and while there are ample funds, no ample preparation has ever been allowed to the Medical department. After the very first battle in the war of 1861 to 1865, scandals began in connection with the treatment of army sick and wounded, and not until ten years after the close of the war did these scandals stop. I think no one understood and appreciated more fully the inadequate means of caring for and supplying the wants of the sick and injured in that war, and in the war of 1898, than did the Medical Department. They were not, however, allowed to make any suitable preparation in advance.

It would be very much beneath the dignity of the government to receive aid and assistance from charitable institutions when their urgent need began. Just imagine church societies, and women's sewing circles, business men's associations, furnishing transportation, furnishing any of the necessities of life to the line and staff in a regular campaign. The officers would easily rise on their dignity and say, "No, thank you, those things are furnished by the Government and should be in sufficient quantities." Just so soon as a man is injured, just so soon as a man is sick, then the United States Government, and all other governments, for that matter, have been very willing to turn the Medical Department, the sick and the injured, over to the tender mercies of charity, where they can be cared for, or they can be neglected, and capital made out of that, both by friends and enemies. I think, in this connection, the old saying might easily be credited a soldier—"Good Lord, deliver us from our friends; our enemies we expect to fight."

This preparation for the care of the sick and injured soldiers leads up to what is the subject of this discussion,—the question of hospitals, their supply and proper equipment, and that in advance of the real need of the hospital. Those things cannot be manufactured in a minute, and yet with all the figures and all the details and equipments of every war easily available on the records, no proper supply of hospitals, hospital tents, cots and general equipments has been allowed and prepared, and furnished transportation to the point of need in a single instance, neither in 1776, 1812, 1861 nor 1898. A large Sanitary Commission was organized in 1861 which undertook to bring to the notice of the public and to the officers what these needs were. I have been reading with a good deal of interest two or three books which go into the details that were found, with some of the remarks made. I quote from one or two of these before I go into the details of what hospitals really require. "The popular opinion of what constitutes a military hospital is very vague, and, in many respects, a very incorrect one. A certain number of beds, a certain number of surgeons, and a sufficient supply of food and medicines to provide all that may become sick or wounded with shelter, attend-

ance and food do not constitute, by any means, all that is required in such establishments. In all countries, some such arrangements have been provided for the care of the sick and wounded, yet hospitals supplied with all these needs have often been pesthouses where the sufferings of the patients have been aggravated rather than relieved. So true was this in former times and so unsuited have such places been proven by experience for the objects for which they were designed, owing to defects apparently inherent in the system itself, that an eminent writer on military hygiene who had the largest experience in the practical management of such establishments a few years ago asserted that hospitals were among the chief causes of mortality in armies, while another with equal opportunities for judging declared that they were the curse of civilization. Unsuitable buildings in unhealthy locations, the over-crowding of patients, want of proper ventilation, deficiency in drainage and water supply, want of proper diet, neglect, or absence, in short, of those general conditions which are embraced under the general term of hygiene,—these were some of the many causes gone into of the failure of the surgical men to treat sick men successfully, who were sheltered from the weather, each of whom was supplied with a bed, and abundantly supplied with such food as would have been nutritious to those in health."

I quote also from a letter of one of the inspectors of that same Sanitary Commission: "From a combination of causes, the condition of the wounded of the battle of Perryville was peculiarly distressing. No adequate provision had been made for their care. The stock of medicines and hospital supplies in the hands of the surgeons was insignificant. They had almost no ambulances, no tents, and absolutely no hospital furniture."

Dr. J. Strong Newbery, in his report to the same Commission, speaking of the inspection made after the occupation of Fort Donaldson, said that in the *Fanny Bullitt*, a transport, men were found on the cabin floor, side by side, touching, with no mattresses, and no supplies whatever. Their individual condition was deplorable. Some had not been touched who had been wounded four days before, their wounds were fairly rotten; other

wounds dressed three or four days before had not been disturbed. Those who had been cared for were cared for by surgeons overburdened with care, worn out by excess and long continued work without a single article of apparel to give to change their clothing, and not sufficient supplies even to dress the wounds. There were no extra blankets, no stimulants, and their diet was corn meal gruel, hard bread, and no heat or milk.

The equipment for a regimental hospital should be such that men taken sick in the actual marching and actual camp life of the Regiment may be taken care of in the hospital. The hospital should be pitched, in the first place, if possible, on the same side of the camp as the Regimental Headquarters, should have separate sinks, should have a separate cook shack, and hospital corps men should never be allowed to sleep in the hospital tents. The hospital proper, with anybody in the hospital, or with only one or two, should contain one hospital tent, with double fly, fitted with beds and with hospital appliances, and one directly in front of that with flaps attached, arranged for the use of the Sergeant as a pharmacy, and for the doctors, as an office. Both of these tents should, as far as possible, be on a level plot of land, and not a sunken plot, and, if possible, slightly raised so that the drainage will be good. Our [New York] medical supply chest is arranged to carry those things that we actually need, but, for the efficient use of the chest, there should be a table supplied with good strong legs on which this can be placed so that the front lid can swing down and be over the edge of this table. The other end of the table should be arranged as a writing desk, with ink or pencil, preferably with indelible lead pencils, so that the surgeon in charge can write prescriptions and prescribe for the men as they come.

This front tent, pharmacy, should be used always as the tent in which morning sick call is received by the surgeon. This should be at any time that the Commanding Officer desires, but usually should take place before the actual work of the day begins. The men should not be sent to the hospital at any time in the day for minor complaints; all those who have minor complaints such as constipation, blisters, galls, venereal diseases, head-

ache, etc., should be sent at sick call in the morning. The custom of the National Guards is for a man to complain to the Commanding Officer that he is sick and wants to go and see the doctor. The doctor may be caring for some burned case or may be doing some surgical (minor) operation, taking stock of his medicines, arranging his hospital, drilling the hospital corps, or any one of a good many things which are necessary for a surgeon to do to keep his establishment in proper order, and for which he should have the entire day after sick call, except as emergencies arise.

There should be, for every company, a sick book made out, with properly ruled columns, with the Company's letter on the head, and outside of the book, and this should always be filled out by the first sergeant, or the Company's clerk, under the supervision of the first sergeant, at the direction of the Commanding Officer of the Company. There should be a place for the Commanding Officer to sign the book before it comes to the regimental hospital. The Company Commander knows in almost every case what special reason a man has for feigning sickness, to avert a long march, to avert digging trenches, and to avert regular duty, and he should take that into account, no matter how piteous a tale of woe the man tells, or how much he screws his face up. This for the protection of the men who are really conscientious duty workers, and should not be made to do the work of the men who are professional soldiers, and do just as little as they possibly can. This sick book should contain a column for the diagnosis as actually made by the surgeon, and a place for the signature of the surgeon, and every morning at sick call these men should be gathered together by the first sergeant from the various Companies' tents.

After he has secured the signature of the Company Commander to his sick book, they should march over in a regular and orderly manner to the hospital tent for morning sick call. If any man is so disabled that he cannot walk, of course, a company litter should be arranged, and either a squad from the hospital tent, or usually from the Company, should secure a litter and bring the man to the hospital tent. These men should stand at the entrance to the hospital tent, unless they are too sick to

stand, but should remain together so that the first sergeant will have no difficulty in finding the men as each man's name is called.

The first sergeant or a duty sergeant who knows the men should be there to identify them as the surgeon call them from the sick book. This is necessary, as sometimes attempts are made to substitute, and it is quite impossible for the surgeon to know 800 men seeing them only occasionally when they are sick. The first Company arriving at the hospital tent in the morning at sick call, or before sick call, will be called by the surgeon, and the other Companies should await their turn, and not crowd into the tent until the sick from one Company have been cared for. The surgeon will call the name of the man who first appears on the Company's sick book; he will be produced and identified by the first sergeant who if he is well should always maintain a soldierly position, and not sit down on the table, or hang over the medicine chest, or sit on the beds, or anything else,—just remain at attention for duty in this connection.

As the first man is called from the sick book, he should step up so that the surgeon will know which man he is, and, when requested, should tell what his symptoms are, how he received his injury, if it is an injury, and such history of the case as the surgeon may ask, and should not tell the surgeon what he would like and what he would not like in the way of some sweetened preparation for his relief, but, after telling what his trouble is, should leave that to the surgeon who then will write in the sick book the diagnosis of the ailment, and, in the next column, state whether the man should be confined in the hospital, returned to quarters, return to his duty, or be favored with light duty.

All patients who have once appeared on the sick book should appear there every day until the surgeon marks them "duty." The sick book is incomplete that one day marks a man "quarters" or "hospital," and the next day the man's name does not appear at all, and the first sergeant reports verbally that the man has returned to duty. If, in the interval between the morning sick calls a man entirely recovers and wishes to take the responsibility, and the Commanding Officer also does, he may return to duty, but, if he objects to being returned to duty, the Commanding Officer

would not be justified in insisting on his returning to duty, without the surgeon's approval, which is always given in the morning sick book. If a man remains in the hospital for two, three or four days, or a week, his name should appear every morning in the sick book; the first sergeant should bring that over at sick call, and when the man's name is called the first sergeant should respond "The man is in the hospital," which can then be corroborated by the hospital sergeant and surgeon in charge. If the man has been returned from the hospital to his Company's quarters by the surgeon and has failed to report there, the discrepancy is immediately discovered, the man is reported absent without leave, and proper steps can be taken to apprehend him.

If the man has been prescribed for by the surgeon, he passes the prescription to the hospital sergeant who stands by, and the man himself retires to the outside of the hospital or under the fly, and remains there until the prescription, has been compounded, and the directions prepared; then he calls the man's name a second time and he comes forward and receives his medicine and returns to quarters, to duty, or to light duty.

If a man is assigned to the hospital, he at once reports to the hospital sergeant who is always present in the hospital tent and who will direct him to a bed in the hospital which is just in the rear of the pharmacy. In a hospital tent, especially with green troops just starting out for a day's march, for practice march, or strike duty, or any other duty which they are called upon to perform, there should be a little more ample preparation made for their care than would be necessary for troops seasoned in service. No attempt should be made to coddle or coddle complaints to keep the men from actually getting hardened to the service as soon as possible, but every effort should be made to make men comfortable and minister to their needs, so that as much service can be obtained from them as possible.

The medicine chest should be fully equipped, carefully gone over just before leaving, to be sure that all those things that are necessary for the care of the unacclimated and unseasoned are in the chest. The hospital tent should contain, beside the medicine chest and table on which the medicine chest should rest and on

which the surgeon prescribes, one more good sized table, preferably a folding table like the other one, and should contain six beds in the one tent, and there should be six more beds ready to be used, and a second tent can be pitched on short notice, if the need should arise. It is quite a different question to care for sick or injured men in the field any more than for a very short time on the ground.

There should be supplied for every regimental organization a dozen or two dozen substantial, well-made, folding cots with wire springs of good quality, with head and foot boards. These should be at least 6 feet 3 inches long. The ordinary cot furnished by the stores is about 5 feet 10 inches to 6 feet long, and this is not long enough for many of the men in the regiment, especially if the man has any dressings on a foot or a head. Besides these cots, there should be furnished a thin, easily rolled cotton mattress for each cot, and these should be a part of the regular equipment of every regiment, and should be constantly kept in good condition. Each man is supposed to have a blanket sufficiently thick and warm to keep him comfortable in good health, but, as soon as a man's forces are depleted by sickness or injury, extra coverings are necessary, and at least one double blanket, all wool, and of dark color, should be furnished for each cot, and the man's blanket should accompany him to the hospital, if he is seriously injured or seriously sick. With each one of these cotton mattresses should be a small hair pillow, and, I believe, for the sake of economy, in caring for these cotton mattresses and hair pillows (which are both furnished the German army, by the way,) there should be well made and substantial pillow slips and sheets for hospital use only. This is a refinement, but in the end an actual economy, because when any man is injured and any blood or matter from the wound gets into the coverings which are put over him it is not sanitary to use that covering again without its being properly washed. Sheets can be easily washed and dried and blankets cannot be easily washed and dried, and if they are, with difficulty, washed and dried they usually shrink materially and their life is much shortened. Beside the equipments, then, of a sufficient number of cots and mattresses and

hair pillows, of which I think there should be twenty-four for every regiment, with twice that number of sheets and pillow slips, there should be in any camp where men are to be kept for any length of time four or five canopy mosquito nets. This was proven especially necessary in the Spanish-American war, and is deemed of a great deal of importance in regard to those diseases which may be transferred by mosquitoes and flies, namely, typhoid fever and malaria, which are the two camp fever diseases which were responsible for more deaths in the civil war than were the bullets of the Southern Confederacy. These mattresses should be arranged so that they can be rolled up into snug, small packets, and if camp is changed every day are immediate equipment for making the bed as soon as camp is pitched again.

There should be furnished with every hospital equipment for regimental use, at least three bedpans and half a dozen urinals, with one large slop pail for every hospital tent. These large slop pails should never be emptied in the neighborhood of the hospital tents, but should always be carried by the hospital corps men to the sinks, and should be disinfected every time they are emptied. There should be an ample stock of towels (four dozen all in good condition would answer the requirement). There should be one pail and two wash basins which would fit inside of that pail used just for the purpose of cleanliness, just for patients. These should not be used for solution dishes, pus basins, or for anything except for the purpose of cleanliness. The hospital sergeant should see that these are carefully packed away each time; the pail should be used for nothing else unless it is to wash out sheets, pillow cases or towels, except for personal cleanliness for the men.

Cooking arrangements for hospital equipment in the field should be very much more complete than are allowed for the Companies. When a man is taken sick and sent to the hospital, it is quite insufficient, so far as his needs are concerned, to send with him his little tin outfit containing knife and fork and platters. The things that one requires when he is sick are things that absolutely cannot be prepared or served in this sort of equipment. All the food that is furnished by the Army and by the Guard is furnished

with the idea that the men are well, in good health, and able to digest and care for solid food, which, of course, is the most concentrated form of food and easiest of transportation. When men become sick, however, usually the first sicknesses that take men in the field and on strange foods, are intestinal complications, usually gastritis, enteritis, gastro-enteritis, acute diarrhoea, attacks of dysentery, cramps and prolonged diarrhoea from fatigue and improper food when the acute diarrhoea has not been properly treated. The food and treatment for these cases should be, in every instance, some liquid diet, and it should be prepared in some palatable and digestible form.

This leads me to speak of the supplies that should be furnished to a hospital establishment, and which should, of course, be used for the sick, and should not, in any event, be used for the officers or for the hospital corps. It should include a bountiful supply of canned soups, including beef extracts, evaporated milk, condensed milk, and within the length of the cable tow of the commissary fresh milk should always be supplied to the hospital first. There should be numbers of small packages of wafers, saltines, in sealed packages that will remain dry and crisp for a long time, no canned fruits whatever or jellies or preserves, but a bountiful supply of those things that go to make up a plain liquid diet. The best cook in the Regiment should be attached to the hospital squad. He should be taught to prepare all sorts of broths, soups and light foods, including the gruels, custards, soft puddings and light stews. These should not only be well prepared and thoroughly cooked, but should be very palatable. This cook should have supplied to him at least a dozen extra cups, saucers and spoons and small waiters, with extra tin plates and things* to make the preparation and serving of light foods palatable and digestible

*The following letter was on April 20, 1904 addressed to the Commanding Officer of the 74th Regiment, N. G. N. Y.:

In accordance with instructions received from you personally, I have reviewed the paper which I submitted to the Board of Officers about one year ago, in which some recommendations were made for the proper equipment and conduct of a Hospital for a Regiment of the National Guard and after that review and in the light of further study in the same direction I have the honor to recommend the purchase at such times as are convenient the following list of articles.

to sick men. There should be a close line drawn between what is for the hospital corps which should, of course, have the same rations as do the Companies, and the sick men, and a careful watch should be kept on the economical distribution of these supplies furnished especially for the sick men. When a cook who has once been thoroughly taught is able to prepare these things and has been assigned to the hospital corps, it is always necessary, besides the cook, to have one or two assistants in the cook shack. These should always be privates and not non-commissioned officers. The cook himself should be a private always, and the general charge of the working of the cook shack, preparing the supplies, issuing supplies, and everything connected with the general management should be entrusted by the officer in charge to a non-commissioned officer, who should not be expected to undertake any part of the menial work connected with the shack or with the preparation of the food or serving of it. This man, as

It is well known that the usual service of the Regiment is in the vicinity of our own home or at least in our own State, and from various sources every regiment has a certain amount of income, and with our beautifully equipped Armory at our service we should be able to accumulate there such stores and equipment as would make it possible for us always to care for, and care for with comfort to the patient, every man who would in the course of strike duty, be assembled there.

As you know there are two large rooms on the floor where the Medical Department of the Regiment is stationed that we could use as Hospital room and with all the conveniences on the same floor and with every convenience that we have in our modern hospitals, except the actual hospital furniture.

Inasmuch as this is the case, I have made out the following list which can be partially or wholly used for our usual field service in the Summer and the rest stored and when we want the same we will find that we shall more than be paid for the small expenditure of time and money.

- 24 Daily Sick Reports bound 96 sheets to a Book and bound strongly and covered with an oil cloth covering to protect the cover, copy for ruling for the leaves, and "directions" for the use of the book enclosed herewith.
- 12 Black Iron framed folding cots, complete with woven wire springs arranged so that they may be folded and packed for shipment, 6 feet 6 inches long and three feet wide.
- 12 Cotton Mattresses three inches thick and 6 feet 6 inches long by three feet wide. These must be arranged to roll.
- 12 Feather Pillows.
- 48 Sheets (single.)
- 48 Pillow Slips.
- 2 Folding Tables, 24 by 36.
- 2 Folding Tables, 24 by 24.

I understand it, should usually be a quartermaster's sergeant who is assigned to the corps, under new regulations. He should be excused from drill as he will have all that he can attend to to look out for his tentage, preparation of beds, and the general outlook of the camp, the hospital sergeant's duties being those directly connected with the care and proper superintendence of the sick. The men who are on duty in the hospital with sick men should be excused, as well as the cook, quartermaster's and hospital sergeants, from drill when their duties interfere with that. I have spoken somewhat in detail of what is actually required in actual hospital experience, because all of those things are not furnished by regulations, but necessities have shown, in every instance, that they had to be secured shortly after, if the hospital was to be satisfactorily and economically conducted, in a way that would preclude complaints.

6 Camp Stools.

1 One dollar Alarm Clock, with a second hand on the face.

3 Galvanized Slop Cans, with handles and covers.

2 Galvanized Iron water pails of sufficient size to take in the wash basins next described.

4 Agate ware Wash Basins, that will nest in the pails described above.

48 Good Towels marked "Hospital," free from fringe but hemmed.

12 Silver Plated Knives.

12 Silver Plated Forks.

2 Silver Plated Table Spoons.

12 Silver Plated Tea Spoons.

12 Black Enameled Trays 16 by 18.

12 White Enameled Cups of medium size with handles.

12 White Enameled Plates medium size.

4 White Enameled Quart Pitchers.

2 Pepper Shakes.

2 Salt Shakes.

3 Chests 36 by 18 by 18, with bolted hinges and handles and padlocked marked "Hospital Hardware," "Hospital Linen" and "Hospital Dietary."

12 Extra Heavy Gray Blankets marked "Hospital."

1 Quart Coffee Pot.

1 Quart Tea Pot.

1 Kerosene Stove with two lids.

3 Kerosene Lanterns.

1 Two Gallon Can for Kerosene.

1 Nest of four small handled Kettles for broths and poultices.

“THE DEGREE OF DOCTOR OF PUBLIC HEALTH.”

BY PAUL FITZSIMONS, M.D.

MEDICAL DIRECTOR IN THE UNITED STATES NAVY.

THE title of this paper was suggested by a recent editorial in the *Medical Record*. It was forcible, but some amplification may be pardoned, if only a few of this influential association should become interested, for the first time, in the subject.

It may be taken for granted that, in the enormous field now covered by the medical profession, specialism is not only advisable, but demanded and it may not be denied that the practice of sanitation and hygiene would be one of the most important. Naturally the subject would be taken up by a medical man, and if post graduate courses were established, and a degree of D.P.H.—Doctor of Public Health,—given on passing a satisfactory examination, the place would seek the man. Not only some, now filled to a degree by incompetents, but many positions of honor and responsibility would arise, as, the community realized that prevention of disease is more important and economical than its cure; and it may not be Utopian to think of a future, when not only communities would pay for prevention of disease, but individuals would follow the Chinese plan of paying when well and not when sick.

The sanitary expert should be a salaried instructor to the individual public, replacing to some degree the medical adviser of the family, making it his duty and interest to carry out the law and explain its necessity without fear of personal unpopularity or of advertising himself. Politics would be eliminated. Busy practitioners would not be called on to give their time to a health board with a minimum of knowledge and no remuneration and the executive officer of the board would not be a plumber with a good salary. The public at large must realize the im-

portance and be educated to the necessity of a change, before it will consent to be inconvenienced to a greater extent or even to a lesser, when influenced by their fears. The public attitude is an unreasoning fear of "microbes" generally, and an indifference to some bacilli they should dread. That bacteria are omnipresent is known, but it is not known that nearly all are innocuous and many useful for some purpose, especially for breaking up complex bodies and reducing them to simple elements, for purposes of nutrition. If it was known that the pathogenic varieties were few and the exact knowledge of these disseminated, panic would be averted, interference with commerce lessened, and gunshot quarantines become a thing of the past. Fear of filth is widely spread and does good if it stops nuisances and promotes cleanliness, but filth does not generate specific disease. Dirty streets are a nuisance and people know the wind often drives infected dust, but to make sure of its thorough distribution, streets are swept, instead of being washed.

The Federal Government in a large sense is the ideal health protector, and the results show that public education has reached a certain point and is expanding. Law-makers must know the necessity, before they will pass the necessary laws and appropriate money for carrying them out. No law however can be enforced if it is opposed to public sentiment, and the diffusion of knowledge is shown farther, in lessened friction with State Boards.

A National Board of Health was organized in 1880, but no money was appropriated and it quickly expired.

The Marine Hospital Service was reorganized on a good basis in 1871. Examinations for entry and promotion, life tenure, and fair play were established. It has increased steadily in importance. Its title was changed in 1902 to the U.S. Public Health and Marine Hospital Service. It controls thirty-seven quarantine and inspection stations, furnishes officers to make investigations and aid the states in stamping out infectious disease. Congress has appropriated a site and \$32,000 for a laboratory to be used in "investigating contagious and infectious diseases and other matters relating to public health." Doubtless its usefulness will increase yearly and its duties become more specialized. The Agricultural Department also does good work directly in

epidemics, and indirectly by educating the public, and controls excellent bacteriological and other laboratories.

Medical men of the Navy and Army from the nature of their positions, and by regulations, are health officers of special public services. The Navy is dependent on its own resources, and efficiency demands a constant effort to keep at least abreast of the times, in order to protect the health and lives of large bodies of men, committed absolutely to its care, with no opportunities for professional consultation, or reference to specialists. Young men entering the service now, are much better equipped, than in the past. Advances in science are so rapid that year by year they start on a higher plane, but European as well as our own governments have found it necessary to establish schools for instruction more especially in sanitation and hygiene. Some years ago a school was established at the Naval Laboratory and it is now replaced by one in Washington on broader lines, thus enforcing farther study in sanitation and hygiene by those entering the service and enabling others at intervals of their career to increase their practical usefulness under favorable circumstances.

The use of iron instead of wood, of electricity for lighting and secondary machines, and other improvements due to the general trend of civilization have simplified some problems and others are in process of solution by a universal elevation of the status of the sailor. He is called on to furnish more intelligence and is treated more intelligently.

In addition much improvement is due to the medical officer, partly by a process of instruction, going on constantly in an association with the younger officers and partly by official relations. His personal equation is important. Some of his ideas may be crude, others radical. He may fail or he may succeed in what he considers most important. His single accomplishment may be small, but the total result year by year is vast and this is, that a Captain is able to grasp the general principles and is willing to carry them out.

Only recently the Surgeon General has been "granted representation, in an advisory capacity, in relation to matters of construction." Hitherto the medical officer reported defects and made recommendations when the ship went into commission and it is safe to say that up to the time when it was generally too late,

very little thought had been given to the avoidance of strong predisposing causes of disease.

A battle ship is a floating, armored fortress, carrying guns, ammunition, machinery, boilers, coal, water, and stores of all kinds. When the hundreds of different spaces are filled, enough room is left on the berth and gun decks for 700 or 800 men to sling their hammocks, after the fashion of a layer of sardines. Sleeping quarters must be restricted, and it is a most difficult problem to ventilate them with a fair success. The quantity of fresh air entering depends on the size of the inlet and number of revolutions made by the fan, and when this only is considered draughts are the rule.

Many troubles confronting an Army officer are absent. Food is abundant, and usually good, cold storage room making fresh meat possible, cooking is fair and being improved, disposal of excreta easy and water is excellent, a plentiful supply being distilled. In case water for drinking or cooking is obtained on shore, the Regulations require the Medical Officer, before it is brought on board, to "report at once if any doubt exists as to its purity." Up to 1880, water was usually brought from shore on the Asiatic Station, and caused so much sickness and invaliding from gastro-intestinal diseases, that its use has since been prohibited.

If an infectious case occurs on an artificially crowded ship, a prompt diagnosis is required, isolation is difficult and extraordinary care is required to prevent an epidemic, but the food and water is known to be good, and the source of infection must be extrinsic, that is brought on board by a man from liberty. There was practically no sickness in the fleet during the blockade off Santiago. On the Brooklyn the sick list was less than 2%, and most of the admissions were for injuries. The men were hard worked, keeping up steam, night watches and coaling ship in a tropical sun.

An attempt has been made to show that the military services have realized the necessity of establishing schools for instruction in Sanitation and Hygiene, and that Congress has established a corps of Public Health officers. If the good work goes on, we will reach the ideal point where medical men will prepare themselves for this specialized work, when the public will insist on their employment.

THE UNITED STATES ARMY GENERAL HOSPITAL,
AT THE PRESIDIO, OF SAN FRANCISCO,
CALIFORNIA, 1901-1902.*

By COLONEL ALFRED C. GIRARD,

ASSISTANT SURGEON GENERAL IN THE UNITED STATES ARMY.

Part 1.

DURING the year the buildings† destroyed by the fire occurring June 10, 1901, comprising patients' dining room and kitchen, bakery, cold storage room, Ordnance and Quartermaster store room, carpenter and paint shop, Hospital Corps dining room and kitchen, Ward "F" and a portion of Ward "G", were replaced. Ward "F" was entirely remodeled for the purpose of using it as an isolation ward for infectious diseases. It has been used for this purpose and also as an officers ward. Three sets of quarters for Medical Officers on duty at this Hospital have been constructed, one single set for the use of the Commanding Officer, and a double set. The grounds about the officers' quarters have been graded and planted, and the surroundings of the General Hospital improved in appearance.

This report will be divided for convenience into the following sections:

1. General Administration, comprising reports of the Quartermaster and Commissary, mechanical department, property office, dispensary, patients' and Hospital Corps mess, printing office,

*The editor is glad to publish this official report of the Presidio General Hospital for the fiscal year ended June 30, 1902, not only as a graphic account of a year's management of a great military hospital and as a record of superb work accomplished, but also as a vivid guide to other officers upon whom the duty of similar management may devolve. The report will be complete in a series of nine parts.

†In the annual reports of the Hospital for the fiscal years ended June 30, 1900, and June 30, 1901, a history of the establishment of the Hospital is given, together with a detailed description of the buildings.

telegraph and telephone office, Hospital Corps and Army Nurse Corps.

2. Medical work of the Hospital.
3. Surgical work of the Hospital.
4. Report of the Bacteriological Laboratory.
5. Eye, Ear, Nose and Throat Clinic.
6. X-Ray Laboratory.

GENERAL ADMINISTRATION.

The general administration of the Hospital, as detailed in previous reports, has been but little changed. Some additional improvements have been made in the running of the various departments whereby less friction has been caused and a better service rendered than heretofore. One of the most difficult factors present in the the smooth running of such a large establishment as this, has been the frequent changes of Medical Officers. This subject was referred to in the last annual report, and at that time a small permanent staff had been on duty at the Hospital for some months. This was found to be of great benefit, as the many small details necessary to the management of the institution were thoroughly understood by these officers, and the work was carried on with but very little friction. During the past fiscal year, however, owing to the exigencies of the service, changes in Medical Officers have been more frequent, thus necessitating frequent changes in the detail of officers. It is without doubt better, in such a Hospital as this, to have a certain number of permanently detailed officers. This is more just to the patients who come under their care and to the service which is expected of the Medical Officers by the government. The Officers who have been on duty at the Hospital, even but for a short time, have, in most instances, quickly learned the necessary rules for the government of the departments to which they have been assigned, and the work has progressed favorably despite the changes in detail which have been necessary.

a. *Report of the Quartermaster.* The following statement shows the exact amounts expended from each appropriation during the fiscal year:

In addition to the work done for which allotments were made,

I would state that repairs of various kinds have been made; roadways about the Hospital have been graded; the grounds about the Hospital have been surfaced, properly graded and sown with blue-grass seed. The fire on June 10, 1901, damaged the grounds and lawns. The work of repair was done by enlisted men.

A chapel and reading room have been finished during the year at a cost of \$3405.00.

The following buildings have been added and rebuilt during the year, contracted for and payments made by the Chief Quartermaster, Department of California:

A new chapel and reading room built at a cost of	\$ 3405.00
Rebuilding kitchen and bakery, (one building)	14319.50
Rebuilding Ward "F"	12981.00
Rebuilding Dining Room and Kitchen	11410.00
Rebuilding detailed men's building	10917.00
Repairs to "Ward G"	1825.00
Building quarters for one Officer	10048.83
Building quarters for two Officers	17896.58

A road around the officers' buildings has been completed; likewise the grounds and lawns about these buildings have been graded and sown in grass seed, cedar trees planted and the grounds otherwise beautified. The work was done by enlisted men.

Allotments made by the Quartermaster General at different times and for specific purposes during the year:

\$50.00 for installing annunciator in "Ward F,"
18.00 for grass seed for lawns,
59.38 for repairs to heating system,
66.95 for setting up ranges in temporary kitchen for patients,
253.86 for installing an additional pump at the power plant,
65.00 and \$45.00 for general repairs to delivery wagon,
60.00 for constructing hood over range in Corps kitchen,
40.00 for the hire of labor to plaster Commissary store room in "detailed men's building,"
125.00 for plates and bars for furnace in power plant,
20 for repairs to ranges,
171.22 for fitting up office and laboratory for Dental Surgeon in the Administration Building,
600.00 for making certain changes in the electric system.
301.99 for construction of sidewalks around officers' quarters.
350.00 for construction of brick gutters around officers' quarters,
26.00 for purchase of cedar trees.
650.00 for general repairs for fiscal year ending June 30, 1902.

These various constructions and repairs were made systematically to the best interests of the government and in a most economical manner; all empty oil boxes and cans were carefully preserved and sold and the proceeds, amounting to \$70.20, were deposited to the credit of the U. S. Treasurer.

The following transportation by rail has been furnished during the year to patients sent to Fort Bayard, N. M., and Hot Springs, Ark., and to patients returned to duty to join their organization, 510.

Transportation for messenger service, etc., 1560.

Baggage transferred, 3960 parcels.

Clothing issued to patients and Detachment Hospital Corps, \$10652.06.

Statement of funds pertaining to the Quartermaster's Department, expended for the following appropriations, for the fiscal year ending June 30, 1902:

Regular supplies.....	\$ 3501.55
Incidental expenses.....	474.50
Army transportation.....	993.46
Barracks and quarters.....	2042.84
Grand total expended for the year.....	\$7012.35

b. Report of the Commissary. The following is a report of the operations of the Commissary Department up to May 31, 1902:

Total number of rations issued.....	81051
Average number of men and women rationed	242
Paid for Hospital supplies.....	\$36026.00
Paid commutation of rations.....	3241.50
Paid for fresh beef and savings	12838.52
	<hr/>
	\$52106.48

c. Mechanical Department. The mechanical department of the Hospital comprises the steam heating plant, electric plant, ice plant and laundry; and is under the charge of a Chief Engineer, who is aided by two assistant engineers, one civilian and one detailed from the Hospital Corps. He has also under his charge two civilian firemen and one fireman detailed from the Hospital Corps, one plumber detailed from the Hospital Corps, an electrician and one man to assist the plumber.

The power plant consists of two 150 horse power water tube boilers, two high speed automatic engines 8"x12", coupled direct to two direct current generators of 48 kilowatts each, having a total capacity of 640 amperes of current, and supplying the current for all the lights in the Hospital, and Officers' quarters, as well as the power for the electric stoves, static machine, centrifuge, incubator, sterilizer, fans and two motors, one 15 and the other 8 horse power. These motors furnish the power for the laundry machinery, which consists of three large washers, two centrifugal extractors, two mangles and two irons.

The heating system embraces all the buildings and wards, and also furnishes heat for the drying room and ironing machines in the laundry. Each ward has about thirty radiators. The water is heated in a 2000 gallon tank containing a copper coil through which the live steam flows, the flow being regulated by a pressure regulator and the condensation carried back to the boilers by means of a steam trap which is connected to the main return supply. The tank has a 2" supply pipe and a 2" outlet, from which pipes perfectly insulated with magnesia and supplied with expansion joints run to all parts of the Hospital. The temperature of the water is maintained at 180° F. There are 104 faucets drawing from this system.

The kitchen has four large stock kettles, two vegetable boilers, one egg boiler, with a capacity of 16 dozen eggs; also one coffee, one tea, one hot water and two milk urns on which a pressure of 15 pounds per square inch is maintained.

The wards are ventilated by a system of ceiling and floor registers, the latter being connected to an uptake under the floor which has an outlet in the main ventilating shaft, where a strong suction is produced by a steam manifold, creating a suction of 150,000 cubic feet of air per hour, or about 4,000 cubic feet artificial supply per hour for each patient if all the beds are occupied.

The main water supply is brought from the city supply through a system of Jewell filters, and piped to the several wards and buildings. In addition to this filtered system there is a six-inch main for fire protection. On this pipe are connected six fire hydrants with two 2½" outlets on each.

The water for irrigating purposes is obtained from the Presidio pumping station, and a two-inch main encircles the grounds, with stand pipes and faucets at frequent intervals. Both water mains are furnished with a series of by-passes and check valves which insures water at all times.

The ice plant is composed of one No. 5 $\frac{1}{2}$ Vulcan Compressor with a capacity of one ton per diem only one-half of this capacity is used for making ice, the other half is used in the cold storage room. The daily output of ice is 900 pounds.

The coal consumption from July 1st, 1901, to May 31st, 1902, was 4,852,630 lbs., and the cost of running the various departments was as follows:

POWER PLANT.

- 1 Chief engineer @ \$100 per month,
- 1 Assistant engineer @ \$80.00 per month,
- 2 Firemen, each @ \$60.00 per month,
- 1 Assistant engineer, (Hospital Corps) @ \$10.00 per month ex. duty pay
- 1 Plumber (Hospital Corps) @ \$15.00 per month extra duty pay,
- 1 Fireman (Hospital Corps) @ \$10.50 per month extra duty pay.
- 1 Electrician,
- 1 Plumber's help.

LAUNDRY.

- 1 Laundryman, @ \$55.00 per month,
 - 2 Laundresses, each @ \$25.00 per month and rations,
 - 3 Hospital Corps men, 2 of whom receive \$6 per mo., extra duty pay.
- Total expenditure, about \$231.00 per month.
Average daily output, about 2000 pieces.

d. Property Office. The work in the Property Office has been under the Charge of a Commissioned Medical Officer, United States Army, known as the Property Officer, who had as assistants one Acting Hospital Steward, a Lance Acting Hospital Steward and a Private of the Hospital Corps, the Lance Acting Hospital Steward acting as clerk and the Private as store keeper.

The handling of the Medical property has been conducted in the following manner: Special requisitions for supplies were sent in once a month since February, 1902, previous to which date they were made semi-monthly. Upon receipt from the Supply Depot the supplies were carefully checked over with the packer's list by either the Steward or the store keeper. The invoices from

the Medical Supply Depot were then carefully compared with the packer's list, and receipts, after having been also compared, were signed and forwarded by the Commanding Officer. Supplies have been issued only upon orders signed by the Ward Officers and approved by the Commanding Officer.

A stock book is kept for the Medical Property on hand in the entire Hospital, itemized in such a manner as to show in what part of the Hospital each article may be found and to whom it is charged. This is for the purpose of better enabling the Property Officer to see that no property is in use which has not been regularly issued in compliance with existing orders.

The following is a copy of Article "H", being an extract from Rules for Medical Officers on duty at the United States Army General Hospital, Presidio, S. F., Cal., and its directions, which have been strictly complied with, will explain the handling of property within the Hospital.

"H. CARE OF PUBLIC PROPERTY AND WARDS.

"1 In order to protect the public property of this Hospital from loss and unnecessary damage, Medical Officers will be required to receipt to this Office for all property in that part of the Hospital over which they have control. These receipts will be made upon a prescribed form and will be rendered when the Officer first assumes charge of the property. Careful distinction will be made between medical and quartermaster property, each being receipted for on a separate blank.

"2. Each ward will be furnished with a property book in which will be entered all articles of public property, proper notation being made of all articles received and expended or lost.

"3. Whenever public property is issued from this office, it will be accompanied by an invoice signed by the Property Officer, who will after verifying the property, return the receipt to this office.

"4. If a transfer of property is ordered from one building to another the issuing Officer will prepare invoices and receipts in duplicate. One invoice and both receipts will be sent to the receiving Officer, the other invoice to the Property Officer. The

receiving Officer will sign both receipts, sending one to the issuing Officer and one to this office.

"5. All property received by issue from this office, by transfer or found in ward, as well as all property issued by the officer, lost or destroyed, will be duly accounted for in the property book and also form 'Statement of Property.' This form will be rendered to this office on the last day of each month, showing the dates of receiving and of disposing of property during the month. In addition, 'Statement of Losses' will be rendered at the same time.

"6. Each Ward Officer will require his wardmaster to verify all public property in the ward on the 10th and 20th of each month. All losses of or damage to property will be promptly reported to this office. So far as possible, damaged property will be exchanged for that which is serviceable, in which case no invoices or receipts will be exchanged. When property is turned in to this office, the Property Officer will give his receipt to the responsible officer."

It is believed that the above method of handling the large amount of public property constantly required for use in so many hands has proven to be the most just and economical that could be devised, since it makes each one, down to the wardmaster, personally responsible for every article of property over which he has control, and from the time of its origination and adoption, no property whatever has been lost or misplaced that could not readily be accounted for.

The buildings used for store rooms for both property and drugs are two temporary buildings moved from the Model Camp, Presidio, and are quite ill suited for this purpose, being old and out of repair, improperly arranged and in an inconvenient location.

c, Dispensary. The dispensary occupies one of the larger rooms in the rear half of the Administration Building and, although small and in no way elaborate for the amount of work done, it is conveniently located and thoroughly equipped with a double dispensing set of bottles and an extra set of glass labels for additional medicines not on the Supply Table. It is under the direct control of a Commissioned Medical Officer with an Acting Hos-

pital Steward in charge and two Hospital Corps Privates, who are pharmacists of more or less experience, on duty as clerks.

The stock of drugs and medicines has been replenished once each month through the property office from the United States Army Medical Supply Depot, San Francisco Cal., and for variety it is believed has been kept up to a high point of excellence, there being carried, on an average, more than one hundred and fifty drugs and proprietary medicines not on the Supply Table.

All medicines and liquors, excepting small quantities for daily dispensing, are arranged according to the Medical Supply Table in a store room designated for that purpose, and are drawn therefrom only as the necessity arises.

The following books are kept in the dispensary; separate prescription books for medicines and liquors, in which prescriptions are duly numbered and filed in the order received; a liquor book, with an accurate account of alcoholics used in the various wards during each month, with amounts and dates of issues, and from which a report is rendered to the Commanding Officer at the end of each month; a stock book, showing the amount of drugs and medicines on hand at the first of each month, the amount received and the amount expended, thus enabling the Steward in charge to prepare timely requisitions for medicines needed and obviating the accumulation of any excess.

The following is a copy of Article "L", being an extract from Rules for Officers on Duty at the U.S.A. General Hospital, Presidio, S. F., Cal., and will explain in full the manner of dispensing medicines.

"L. DISPENSING OF MEDICINES.

"1. Medicines will be administered to patients only by the order of the Ward Officer or Officer of the Day, and a prescription should be written covering such order.

"2. Medicines, with the exception of the articles named below, will not be kept in the Ward in bulk. Each patient will be prescribed for separately, a prescription bearing the ward letter, the patient's name, company and regiment being written and sent to the dispensary. As far as possible, prescriptions should reach the dispensary before 10:30 A.M.

"3. The following articles may be kept in the Medical Wards in bulk provided they are needed:

Alcohol,
Aqua ammoniae,
Oleum ricini,
Potass. permanganate,
Bismuth sub-gallate,
Bismuth sub-nitrate,
Sodium phosphate,
Trikresol.

"4. In the Surgical Ward, in addition to the above, the following articles may be kept in bulk:

Aether,
Antiseptic tablets,
Chloroform,
Carbolic acid,
Collodium,
Hydrogen peroxide,
Normal saline solution tablets,
Oxalic acid.

"5. The labels are to be retained on the containers of the above articles, and if the necessity for the use of any of them ceases to exist, the containers will be returned to the dispensary.

"6. Medical Officers in writing prescriptions for whiskey, brandy or wine of any kind, will give name of patient and the size and frequency of the dose.

"The metric system must be strictly adhered to in writing prescriptions. In the future, prescriptions written in any other system will be returned for correction before being filled.

"The dispensary is open from 6 A.M. to 9 P.M., and during the night one man remains subject to calls from the bell attached to the outer door."

The average daily number of prescriptions dispensed during the year has been about 180.

f. Patients' and Hospital Corps Mess. The personnel of the mess department consisted, for the past fiscal year, of a mess Officer, 1 Hospital Steward, 1 Acting Hospital Steward, 4 civilians and 2 Privates of the Hospital Corps. The mess department includes 2 kitchens and 2 dining rooms for the patients; kitchen

and dining room for the Hospital Corps; supply room and office, and a bakery.

The Steward of the mess has, under the direction of the mess Officer, supervision of the dining rooms, kitchens, and bakery. He keeps the records of this department, receives and issues all supplies and makes proper entry of same.

The Acting Steward, as assistant, supervises the immediate work in the kitchen and dining rooms. Six Privates of the Hospital Corps are employed in the patients' kitchen and three civilians, 1 chief cook at \$60.00 per month, and two assistants at \$40.00 per month, prepare the food for the patients. In the dining room and scullery four Privates are employed. In the Hospital Corps kitchen four Privates of the Hospital Corps are on duty, while in the Hospital Corps dining room three privates are on duty.

The bakery employs one civilian as chief baker at \$50 per month, and one Private of the Hospital Corps, who receives a gratuity of \$6 per month. The oven of this bakery has a capacity of 220 loaves of bread at a baking. Three men can readily bake four bakings per day, or a total of 880 loaves. The bread baked is of excellent quality, two grades of flour being used with the addition of milk which gives a superior grade of bread.

Since the last report of the Hospital the kitchens have been rebuilt and refitted with an entirely new and improved modern plant. In the diet kitchen two steel "Monitor" ranges have replaced the French ranges formerly in use, and are giving excellent satisfaction. Two steel hotel broilers are used in connection with the ranges. Four double jacketed steam kettles, capacity 35 gallons each, are used for oatmeal, puddings, stews and soup stock; two iron steam kettles, each with four galvanized iron perforated vessels for vegetables, with a capacity of 400 lbs., potato, and egg boilers, capacity 240 eggs, complete the steam cooking plant. A set of five nickle plated urns for coffee and tea are also in use. One urn having a capacity of 60 gallons of boiling water, feeds the urns as required. Two urns for coffee and tea have a capacity of 40 gallons, while two smaller auxiliary urns have a capacity of 10 gallons each. In the pantry of the diet kitchen a

number of sheet iron canisters neatly painted and labeled have been placed as containers for different articles of food; they range in capacity from 30 lbs. to 200 lbs. according to the bulk of the various articles used. They make a neat appearance and are a decided improvement over the discarded boxes and barrels formerly used for this purpose. The scullery is connected with the kitchen by a double door. Like the kitchen it has a cement floor. At one side of the scullery a hand elevator with a capacity of 350 lbs., for raising vegetables and coal for the kitchen, is placed. A copper lined trough, 9 feet long, 2 feet 9 inches wide and 14 inches deep, is placed along the center of the floor of the scullery and is used for the purpose of cleaning all dishes for one dining room, etc.

The dining room has a seating capacity of 260 patients, and it has seated over 300 when required. A small room has been set aside, in connection with the dining room, where meals may be served to Medical Officers on duty at the Hospital, and who, by reason of special duty, may be unable to leave the Hospital at meal time.

There has been no change in the method of procuring supplies nor in their issue to kitchens and wards. The system as it has been in vogue at this Hospital for the past two years is entirely satisfactory. Bids are required from all dealers, supplies are carefully examined when received, and no supplies are issued without the signature of the officer to whom issued.

The Hospital Corps kitchen and dining room are entirely separate from the patients' kitchen and dining room. The food of the Hospital Corps is varied, of good quality and well cooked.

The female nurses' kitchen and dining room is in charge of a nurse designated as housekeeper. A woman cook and two Japanese waiters are employed under her charge. The account of savings and expenditures, with a pro rata dividend allowed them from funds received from officers sick in Hospital, is entered on the Hospital fund statement with the account of Hospital Corps and of the General Hospital.

The average cost of subsistence for patients per day has been 38.21 cents, this including 8838 rations at 16.28 cents per ration

drawn for the patients. The cost of the Hospital Corps subsistence per man per day has been 16.78 cents, and of the nurses 17.28 cents per day. The total cost of rations for the patients, Hospital Corps and nurses, including the 40 cent allowance per day for patients, expended in money value, equals for the twelve months \$68,693.30.

g. Printing Office. During the past year the printing office has printed for and supplied the various departments of the Hospital with the 107 different forms common to this institution. In addition, it has printed the general orders, special orders, circulars, letter heads, note heads, envelopes, programs, signs, notices, imprints in regular forms, and whatever printed matter was necessary for the administrative work of the Hospital.

The office is equipped with a 12x15 foot power Gordon Job Press, a Challenge Cutter with 14-inch blade, a Hercules Stapler, outfit for tablet work, and 41 cases of job type. The type is comparatively new, and has been selected for its particular adaptability to the work of the Hospital. It consists of the necessary fonts of type used in "straight matter", with the most useful faces of Gothic and a small series of French old style.

Orders relating to the work of this office come direct from the Commanding Officer. The Commanding Officer also reads all proofs, thus insuring correctness and care in preparation.

The printing office is under the immediate charge of a Private of the Hospital Corps, who, at the close of the year, was doing the entire work of the office. Up to May 1st, 1902, an assistant was detailed but owing to decrease in work the detail was revoked.

Work completed is turned over to the department in which it is used, provided it is common to that department. If for general use it is kept in stock and issued as needed.

h. Telephone and Telegraph Department. Connected with the Hospital is a regular Western Union Telegraph Office, as well as a city official telephone and a pay telephone. Besides these, there are three local systems.

System No. 1: System No. 1 connects the General Hospital with the auxiliary hospital, the lower corrals, for use in ordering ambulances, conveyances, etc., the hospital electric and heating

plant, and the office of the steward in charge of the mess. The lines and instruments used in this system belong to the Signal Corps of the United States Army.

System No. 2: A local system connecting all the offices of the Hospital, Commanding Officer, Executive Officer, Superintendent of Medical Wards, Record Office, Quartermaster's Office, Officer of the Day, Hospital Corps Detachment, Hospital Kitchens and ten wards, is in use. This system is entirely confined to the General Hospital, and the lines and instruments used are the property of the Signal Corps of the United States Army.

System No. 3: This system, known as the Presidio local exchange, connects the General Hospital with the Post Hospital, Presidio, Presidio Post Headquarters, and the quarters of the Commanding Officer of the Hospital. The system is connected with the Presidio local exchange, whereby the general Hospital can be connected with all the offices and departments of the Presidio Post and with the forts in the Harbor of San Francisco, i. e., Fort Mason, Fort Baker, Alcatraz Island, Fort McDowell, Discharge Camp Angel Island, Detention Camp Angel Island, and Fort Scott. The lines and instruments used in this system belong to the Signal Corps, United States Army.

Long distance business is transacted over the official telephone the General Hospital being a regular long distance station.

The personnel of the telegraph and telephone department consists of three Privates of the Hospital Corps: two telegraph operators who work seven and one-half hours per day each, relieving each other respectively, and one telephone operator. At 10 o'clock P.M. the telegraph department is closed and the guard in charge of the Administration Building answers the telephones and transacts the business necessary from time to time until the opening of the office at half past seven in the morning.

The approximate number of Western Union messages sent since June 1, 1901, has been 1300.

The approximate number of Western Union messages received since June 1, 1901, has been 1200.

Copies are kept on file of all messages sent and received since the opening of the office. The office has handled the personal

business of the inmates and employees of the Hospital in addition.

The city official telephone is for the transaction of official business pertaining to the Hospital. Daily reports are kept of the switches made and the business transacted, and these reports are inspected daily by the Commanding and Executive Officers.

Since the last report a telephone has been placed in the Hospital for the use of the public, being a pay station; two convalescent patients are detailed for duty as orderlies at this telephone.

The approximate number of official messages sent over the official telephone has been 4000.

i. Hospital Corps. The Hospital Corps of this Hospital is divided into a permanent and casual detachment. The average number of men on duty per day in both detachments during the fiscal year ending June 30, 1902, is given below:

	Daily average strength	Sick
Permanent Detachment.		
Hospital Stewards for duty	3.37	.11
Acting Hospital Stewards for duty	7.14	.07
Privates for duty	147.91	8.38
Casual Detachment.		
Hospital Stewards	1.17	.56
Acting Hospital Stewards for duty	2.04	1.15
Privates for duty	19.48	13 36

CONFINEMENT.

Permanent Detachment.	
Hospital Stewards	0
Acting Hospital Stewards	0
Privates	.77
Casual Detachment.	
Hospital Stewards	0
Acting Hospital Stewards	0
Privates	0

During the year the rules governing the Hospital Corps, which have been published in previous reports, have been observed; and in addition special written instructions have been issued governing the duties of the night and day door guards, watch-

man, Steward in charge of the Corps, and men detailed upon special duty about the Hospital.

j. Army Nurse Corps. The nursing of this Hospital has been performed entirely by female nurses, and the service rendered has been excellent.

The total number of nurses on duty at the Hospital during the year has been 437. This includes nurses who have been temporarily on duty while returning from Manilla. Besides these there have been 69 nurses on temporary duty at the Hospital, making a total of 506. The average number of nurses per month has been as follows: regular duty 36, temporary duty 5, total 41. Divided as to classes the average has been as follows: class 1, 31; class 2, 6; class 3, 3; class 4, 1. The one case in class 4 was the only one on duty at the Hospital during the year.

THE WEIGHT OF RECRUITS.

IN *Militærlægen* for January 1904, Dr. Bondesen considers the weight of one hundred and ninety-six recruits of the Danish Engineer Regiment who were weighed five times in the course of four months (June to September). The average increase of weight was $1\frac{3}{4}$ Kg.; the increase was greatest during the first month; in the second month there was a slight decrease and in the third month again a marked increase, while in the fourth month a considerably less increase occurred. The average weight of the recruits was at first 63.5 Kg. (highest 85 Kg., lowest 50 Kg.). The increase in weight was greatest in the spare, undergrown men and among those who had lived a sedentary life and were unused to physical labor. The largest increase in weight was 10 Kg. The large, stout men showed less increase; in fact some of them presented a loss. The greatest loss in any one instance was 9 Kg.—HANS DAAE.

APPARATUS FOR TRANSFERRING PATIENTS FROM BED TO BATH.

By GEORGE G. CRAIG, M. D.

CONTRACT SURGEON IN THE UNITED STATES ARMY.

I HAVE designed and had made for me a simple apparatus to aid in the administration of the "Brand" and other full baths, which is well shown in the accompanying photograph, and consists of a canvas hammock attached to a windlass, mounted



Apparatus for Transferring Patients from Bed to Bath.

upon a strong wooden frame fitted with smoothly rolling casters. When the patient has been raised from the bed in the hammock, the frame is rolled along until he lies suspended above the tub; the turning of the windlass then lowers him gently and easily into

the water, from which he is, by reversing the process, comfortably and readily removed at the close of the treatment. The apparatus has been in use at the Rock Island Arsenal Post Hospital for over a year and has proven a most convenient and satisfactory addition to our armamentarium.

NOTE ON FILIPINO MIDWIFERY.

BY MELVILLE A. HAYS, M. D.

CONTRACT SURGEON IN THE UNITED STATES ARMY

THE Filipino finds his way into this vale of tears through a pathway that is difficult for the mother although usually safe for the child. The medicine man, who is the only doctor among the vast majority of the natives, does not interfere in obstetrical matters, the ubiquitous old woman claiming accouchement as her particular prerogative. These native midwives claim to possess remarkable powers. They visit a pregnant woman and after palpating her abdomen, inform her of the exact date of delivery and the sex of the child. As a matter of fact I have never seen any of them come near to the truth in their calculations.

In cases of childbirth it seems almost a miracle that any woman, attended by a native midwife, can escape rupture of the uterus. When labor begins the pregnant woman is placed on the floor, her knees are flexed, and her head, hands and feet are held by women so as to prevent the slightest movement on her part; then a rope is tied around the upper part of the abdomen, after which several old crones begin to strike and knead the woman's abdomen as if it were a batch of dough. I have even seen a club rolled in a cloth, used for this purpose. After the birth of the child, the mother receives no further treatment.

At one time I was lead to believe that criminal abortion and puerperal septicaemia were very uncommon among the Filipinos, but I now know that the former is extensively practiced while the latter frequently occurs and is usually fatal. I have learned that in performing criminal abortions, the women use the bark of a tree known as the *salchichi*; this is made into an infusion and nearly always produces the desired result.

Reprints and Translations.

NEW ARTICLES IN THE SWEDISH MEDICO-MILITARY EQUIPMENT.

SWEDEN (Lieutenant-Colonel E. Boman, *Tidskrift i Militär Hälsovård*) has adopted a new first aid packet. It consists of two light double compresses of gauze 6 x 8 cm.; two cotton compresses 8 x 10 cm.; one gauze bandage 8 cm. x 5 m. with a safety pin; an inner cover of gauze and an outer one of Mosetig batiste. The package measures 10 x 6 x 2 cm. and weighs 30 gm. Packages with the same contents, but of greater dimensions, are also prepared and furnished when desired.

Tablets are also to be adopted in both the Army and Navy, on account of which the entire sanitary equipment is to be altered.

The ambulance wagon which hitherto has carried only two recumbent patients is to be altered to receive four such.

Acetylene is to be used for lighting field hospitals and also for regimental headquarters.

A field bottle of aluminum, covered by felt with a capacity of 750 c.c. and weighing 300 gm., is to be adopted.

The ambulance train will also be modified to carry one hundred and ninety-three patients instead of two hundred and forty-six as hitherto.—HANS DAAE.

SANITARY EQUIPMENT IN THE DUTCH ARMY.

IN a recent number of the *Tidskrift i Militär Hälsovård* is an interesting article by Dr. Josef Hammar of the Swedish service upon the medical department of the Dutch Army.

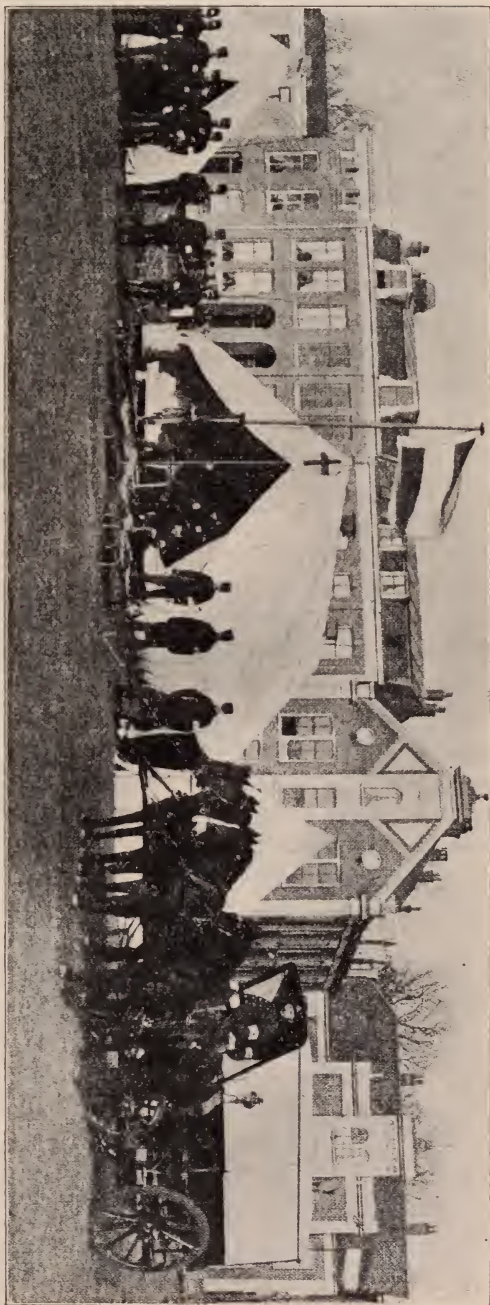
The part relating to transportation is of particular interest and the illustrations referring to that portion of the work are herewith reproduced, showing also the official field hospital and the field chests as well as the uniforms and equipments worn by the sanitary soldiers.

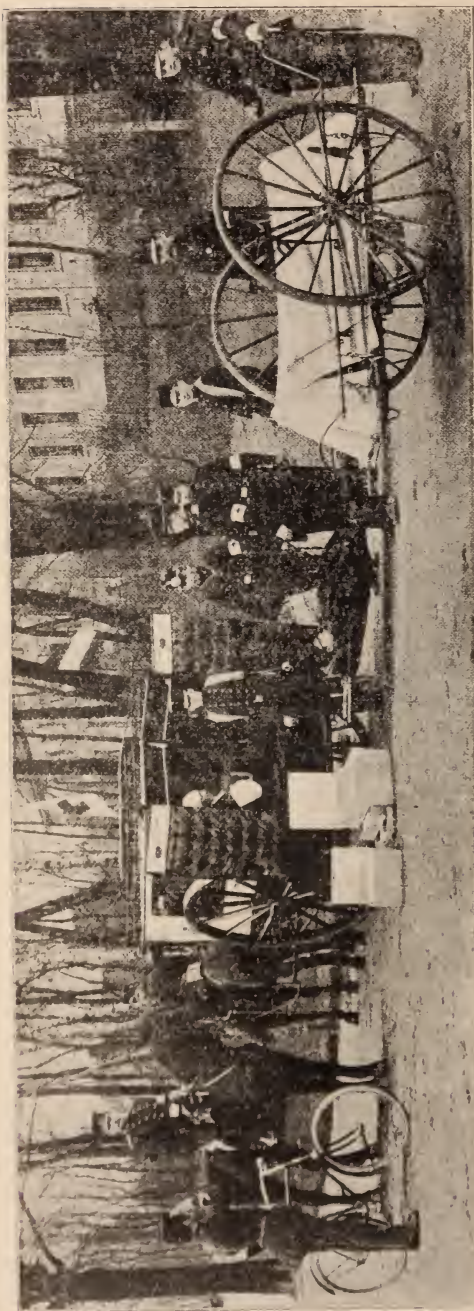
The ambulances are of two kinds, a one-horse vehicle with two very large wheels in which two patients may be carried and a three horse vehicle similar in character to the ambulance of the United States Army in which four recumbent patients may be accommodated.

The litters are well shown in each of the two engravings.

The Dutch Army also employs a wheeled litter quite of the conventional type and forming a

Dutch Army Field Hospital and Four-Wheeled Ambulance.





connecting link between the ambulance and the hand litter.

The hospital tent is rather larger than that of the United States Army and more approaching in size the brigade hospital tent of the Pennsylvania National Guard described in Volume X of the *JOURNAL* by Major Arnold.

It is interesting to note also the employment of the bicycle in connection with orderly duty in the medical department, a feature of medico-military work which has not apparently been taken up for consideration in our own Army, but into which it is certainly worth while to make some investigation. The Dutch Army uses the bicycle only in addition to and not as a substitute for the mounted orderly however.

Medico=Military Index.

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BREVET BRIGADIER GENERAL CLEMENT ALEXANDER FINLEY,
SURGEON GENERAL, U. S. ARMY.—1861-1862.

Editorial Department.

The Surgeon Generals of the United States Army.

X. BREVET BRIGADIER GENERAL CLEMENT
ALEXANDER FINLEY, SURGEON GEN-
ERAL OF THE UNITED STATES
ARMY.—1861-1862.

UPON the death of Surgeon General Lawson in 1861, Surgeon Clement Alexander Finley, the senior surgeon in the service was at once, on May 1st of that year appointed his successor. Dr. Finley was born in Newville, Pennsylvania, on the 11th of May, 1797. He was the son of Major Samuel Finley of the Revolutionary army, who soon thereafter took advantage of the military land grants in Ohio to acquire a home at Chilicothe where young Finley spent his boyhood and received his early impressions. When he had exhausted the educational facilities of Chilicothe, his father bethought him of a famous college at Carlisle, Pa., which had been established there while his son was yet a babe in arms, by the efforts of Dr. Benjamin Rush, a distinguished revolutionary medical officer, and sent the boy to Dickinson, where he was graduated in 1815. The young student then repaired to Philadelphia for the prosecution of the study of medicine and at the Commencement of 1818, he received his doctorate from the University of Pennsylvania.

The glamour of the War of 1812 still hovered over the military service and he was induced by its fascinations to seek at once an appointment to the medical staff of the army, being commissioned as surgeon's mate of the 1st Infantry August 10, 1818. Upon the organization of the medical department in 1821, he was recommissioned June 1, as assistant surgeon in the army and eleven years later, July 13, 1832, he was promoted to the grade of surgeon.

His service during the forty-three years that elapsed before he was appointed surgeon general was naturally varied and comprehensive. From the time of his appointment to August 1822 he served with his regiment in Louisiana. Then he had a two years tour of duty, to May 1824 at Fort Smith in the malarious wilds of Arkansas. After a few months at Fort Gibson in 1825, he was ordered to Florida, and a year later west again to Jefferson Barracks, Mo. and Camp Leavenworth, Kans. where he remained until September 1828. He then passed three years at Fort Dearborn, Ill., where he saw the beginnings of Chicago rise on the shores of Lake Michigan, and then in 1831 journeyed still farther west to Fort Howard, Wis., whence he was for some time detached as chief medical officer of the United States forces under General Scott in the Black Hawk War of 1832. In 1833 he joined the 1st U. S. Dragoons in the morasses of Florida where he remained until 1834, when he was again ordered for a couple of years' duty at Jefferson Barracks. In 1836 he again joined the forces in the field in Florida, serving at Fort Jessup in 1836, at Camp Sabine in 1837, and at various other stations in Florida in 1838.

Upon the cessation of the operations against the Seminoles in 1838, he took station for a year at Fortress Monroe and again in 1839 he went on duty in Buffalo for a year. In 1840 he had the privilege of beginning a tour of service at Carlisle Barracks, Pa., where he renewed his acquaintance with his alma mater, Dickinson College, returning again to Fortress Monroe for a couple of years in 1844.

In the following year, 1846, he accompanied the Army of Invasion across the northern frontier of Mexico and became medical director of the invading forces under General Zachary Taylor, until temporarily relieved from duty and returned to the north on account of sickness. During the period of his detachment in the United States, he served as a member of an examining board. In 1847 he again returned to Mexico with the Army of Occupation under General Winfield Scott and officiated as Medical Director of the forces at Vera Cruz until again disabled by illness, when he was permanently relieved from duty in Mexico and

ordered to Newport Barracks, Ky. for two years. In 1849 he came to Jefferson Barracks for a third tour of duty and passed the years 1853 and 1854 in St. Louis, closing his service as surgeon by a period of service with headquarters at Philadelphia and Frankford Arsenal from October 1854 to May 1861, when he was appointed Surgeon General and took station in Washington.

During the decade preceding his promotion he was much detached from his station on examining board service. From 1853 to 1855, in 1857, 1860, and 1861, he was president of boards convoked from time to time in New York City. He was also president of similar boards which met in St. Louis in 1856, in Richmond in 1858, in Philadelphia in 1859 and in Baltimore in 1860. His dignity, urbanity and fairness made him a model president for these boards. He was genial and courteous to every candidate and is remembered with the kindest of feelings by those who met him thus at the gateway to medico-military service. At the time of his appointment to the surgeon-generalcy he was in New York in attendance upon an examining board, the other members of which were Surgeons McDougall and Sloan, and before which owing to the crisis in the affairs of the nation, a very large number of candidates had applied to appear.

In 1861, as at the present day advancement by seniority and promotion by selection each had its advocates in the army. Among the thirty officers of the medical corps from Finley the senior to Head the junior surgeon, were numerous men of varied and extensive accomplishments, all of them well qualified professionally and each of whom during the next four years of war, gave a good account of himself,—two of them in the southern army, of which one, Samuel P. Moore, became Surgeon General. But of these surgeons,—says General Joseph R. Smith from whom we quote many of the most important facts in this sketch,—only two seemed to be seriously mentioned in connection with the succession. One of these was Finley who was the senior officer of the medical department; the other, Robert C. Wood, was third below Finley on the Register, but had the advantage not only of being the son-in-law of the former President, General Taylor, and the brother-in-law of Jefferson Davis, but also of being on duty in the

Surgeon General's office when Lawson died, at which time he was assigned to duty as Acting Surgeon General. These personal relationships and his official position in Washington had enabled Wood to make many influential friends, by whom recommendations had been put on file in the War Department. So that many regarded his appointment as a foregone conclusion and very few doubted that, if Lawson's death had occurred a few months earlier, Wood would have succeeded him. But President Lincoln promptly appointed Finley.

It was hardly thought possible that General Finley would keep Wood, under the circumstances, as his chief assistant, because it seemed doubtful whether Wood could give loyal support to his successful rival. But Finley nevertheless did retain him as long as he was Surgeon General.

It was a trying time, as, along with his corps the Surgeon General was about to enter upon a period of great and unaccustomed work; for the duties of every medical officer in time of small garrisons in peace, were greatly different from those of the surgeon in war times; while the administrative work of the Surgeon General's office differed not only in amount but in kind. To fill now the office of Surgeon General a man was needed of large acquirements and broad mind,—a man matured by years and experience, and yet young enough to endure the labors, fatigues, trials and disappointments that it soon appeared would confront the head of the medical department.

At this time General Finley was sixty-four years of age; but of fine physique and good for many years more of service. He at once took up the affairs of the medical department with much interest and in full recognition of the profound importance of prompt and adequate action. He spent many hours in his office, and gave considerable time to seeing the different prominent men, members of Congress and others from whom advantages of legislation or otherwise might be hoped for. Besides this he spent portions of many days, in company with Dr. Wood, visiting hospitals, and selecting buildings to be prepared for hospital purposes.

It was difficult then to decide, and still more difficult now to

determine for exactly what recommendations and legislation affecting the Medical Department General Finley was personally responsible. General Smith remembers clearly that he disapproved of female nurses in the Army. But he was politic enough seeing the demand for them by the community, as voiced by the Sanitary Commission, to yield to the demand. He warmly approved of the system of medical cadets which had been introduced, and considered them of "great service in the field and in hospitals, increasing the efficiency of the Medical Department by an intelligent assistance, and gleaning for themselves an amount of knowledge impossible to be obtained in the study of their profession in civil life except at the cost of the labor of years." He made many recommendations looking to the increased strength and efficiency of the medical department, advising an additional assistant surgeon for each volunteer regiment, an increase of the regular medical staff, the enlistment of civilians as nurses for general hospitals, the attachment of two additional men to each company to attend the sick under the direction of the regimental surgeon, and the harmonizing of the medical department in organization with other staff departments.

An act of Congress was introduced early in 1861 extensively reorganizing the medical corps, and embodying these recommendations of the Surgeon General together with numerous suggestions of the Sanitary Commission. The Surgeon General was raised to the grade of Brigadier General, an assistant surgeon general and medical inspector were provided each with the rank of Colonel, eight medical inspectorships, with the rank of Lieutenant Colonel were established and medical purveyors were duly recognized. This act was passed on the 15th of April, 1862.

As to some of the legislation and orders issued concerning the Medical Department about the date of his retirement, General Finley can be considered only indirectly responsible; for he was summarily ordered away from his office to Boston, some time before he applied for retirement, and Dr. Wood was appointed Acting Surgeon General. The circumstances connected with the relief of General Finley from duty in his office, for which we are greatly indebted to General Smith, are as follows, the conversa-

tion between himself and Secretary Stanton being related by General Finley to Dr. Wood, immediately after the interview.

In preparing for the care of the sick and wounded of the army, General Finley selected Philadelphia, as the place for a number of General Hospitals, and appointed Dr. John Neill, an eminent surgeon of that city to supervise their preparation.

Neill had an enemy, a physician of Pittsburg, and friend and supporter of Secretary Stanton, who as soon as he learned of Neill's appointment wrote a letter to the Secretary in which public and personal matters were much mixed. After complimenting Stanton on his administration of affairs in Washington; and after assuring him of the satisfaction with which the Republicans of Pittsburg regarded his work, and their belief that the just reward of this work would be his nomination as the next President, the letter asked:

"How did you come to place Dr. John Neill as Superintendent of Hospitals in Philadelphia? Neither his character nor his abilities justify such an appointment."

Stanton referred this letter to Finley for report and explanation, and Finley in the usual official routine referred it to Neill for remark. Neill at once instituted a suit for libel against the letter writer, who wrote another letter to Stanton telling him that suit for libel had been brought against himself, the writer, in consequence of a confidential personal letter from him to the Secretary. Stanton at once sent a messenger for Finley who hurried to the War Department and presented himself at the Secretary's desk. Punctilious, stiff and stately in manner, the fine old soldier stood sternly at attention until the Secretary spoke.

"Mr. Surgeon General what has become of the letter I referred to you about the appointment of Dr. Neill as Superintendent of Hospitals?"

"Mr. Secretary, I sent the letter to Dr. Neill for report."

"How dared you, Sir, to so dispose of a letter I sent to you?"

"The letter, Mr. Secretary, took the ordinary official course. There was no dare about it, and I do not permit myself to be spoken to in such a manner."

"You don't, hey, I will show you about daring and permitting. Go back to your office and wait until you hear from me."

General Finley returned to his office as directed, and reported the conversation in all its details to Dr. Wood; in a brief time thereafter a messenger arrived from the Secretary with an order for him to repair to Boston, and there await orders. General Finley proceeded to Boston, and thence, in various ways, appealed against the treatment he had received. Senator McDougall brought up the matter in the Senate; but the friends of Mr. Stanton were able to stifle inquiry or action, until, after some time, General Finley, hopeless of justice and redress, asked to be retired, and was, the day before the passage of the reorganization bill placed upon the retired list after more than forty years service, under the provisions of the Act of Congress establishing that list for the United States army. Forty-four years of military duty, with three wars to his credit, had well earned for him the right to rest for the remainder of his days. His retirement, however, did not mean entire oblivion, for three years later he received at the hands of a grateful country the brevet of Brigadier General "for long and faithful services in the army."

General Finley was first and foremost a physician and a most accomplished therapist. His devotion to the sick and his absorption in his work were remarkable. As medical director in the field during the Black Hawk war, he received the official thanks of General Scott for saving the army from destruction by cholera which raged among the troops with such virulence that the operations were known as the "cholera campaign." It was at this time that General Scott found him one day so nearly worn out by many consecutive hours attendance upon the stricken soldiers as to be almost powerless. Appreciating the condition the General insisted that the Doctor should go to his tent, and placed a sentry before it with orders "not to allow any one to disturb Surgeon Finley for twelve hours." Dr. Finley believed that by giving him this rest, General Scott saved his life.

In his youth General Finley was known as "the handsomest man in the army." He was six feet in height with a well proportioned figure and a thoroughly military bearing. His eyes were blue, his complexion ruddy and his hair black until the weight of years blanched it to a silver white. He wore during most of his service what were called military whiskers, that is, the

whiskers at one time prescribed by Army Regulations for persons in the military service, viz. extending in a curve from the tip of the ear to the corner of the mouth. Habitually he wore a military cap, was strictly attentive to every minutia of the Regulations, rather bordering on the martinet, and indeed more military than General Lawson himself. He was extremely religious and a strict disciplinarian, but very tender hearted and lovable in his family to which he was deeply attached. His character was upright and his disposition generous; his manner courteous and his conduct always that of a gentleman of the old school.

After his retirement he made his home in West Philadelphia; here for eighteen years he enjoyed the otium cum dignitate which he so richly deserved and here finally he died on the 8th of September 1879.

THE WALTER REED MEMORIAL ASSOCIATION.

TO enable them to more fully carry out the project to erect a suitable memorial to the distinguished demonstrator of the method of suppressing yellow fever, the officers actively interested have formed a corporation known as the Walter Reed Memorial Association of Washington, D.C. The officers of the organization are, President D. C. Gilman of the Carnegie Institution, President; General George M. Sternberg, U. S. A., Vice-President; General Calvin De Witt, U. S. A., Secretary; President Charles J. Bell of the American Security and Trust Company, Treasurer; with an Executive Committee consisting of the Officers and Major Jefferson R. Kean, U. S. A., Major Walter D. McCaw, U. S. A. and Dr. A. F. A. King. Under the direction of the new corporation the campaign for the completion of the project is now being actively carried on. Each member of the Association of Military Surgeons either has or will soon receive a letter from General De Witt inviting his personal cooperation in the work. It is hoped that the response upon the part of our members will be prompt and generous and demonstrate that esprit de corps which is particularly appropriate in view of the fact that Major Reed was an active and interested member of the Association of Military Surgeons and a valued contributor to its work.

MEDICO-MILITARY MATTERS IN CONNECTION WITH
THE RECENT MEETINGS AT ATLANTIC CITY.

MEDICO--MILITARY matters were very much in evidence at the recent medical gatherings at Atlantic City. The Surgeon Generals of the Army, the Navy and the Marine Hospital Service were invited to be the guests of honor at the meeting of the American Association of Medical Editors at which the services were represented respectively by Surgeon General Wyman, Surgeon Stokes, Major Borden and the Editor of the *JOURNAL OF THE MILITARY SURGEONS*. At the literary session the medico-military department was represented by a paper on "Military Medical Journalism at the Beginning of the Twentieth Century" by Major Pilcher; and at the banquet in the evening Surgeon General Wyman responded interestingly to the toast "The Public Health and Marine Hospital Service;" Surgeon Stokes, in response to the toast "The Medical Corps of the Navy," described attractively the work and functions of the Naval medical officer; Major Borden responded in his usual felicitous vein to the toast "The Medical Department of the Army;" and the editor of the *JOURNAL*, in response to a toast relating to military medical journalism, assured the gathering of the active interest of the military medical press in everything that could conduce to the furtherance of the service of the sick and wounded in war and peace. Upon the following day the Secretary of the Association of Military Surgeons was elected First Vice-President of the Editors' Association.

The American Medical Association also manifested much interest in military medical matters. A magnificent subscription list, amounting to no less than \$7500.00, was rolled up in a short time for the Walter Reed Memorial and a general session was devoted largely to a symposium upon the relations of the public services to the medical profession, in which papers were read by Colonel Vaughan of the University of Michigan, representing the medical profession at large, and by Surgeon General Wyman, Major Borden and Surgeon Stokes as representing the Public Health and Marine Service, the Army and Navy respectively. If during the past the public services have been too much apart from

the general profession in their work and objects, this can hardly be said for the future if the admirable plan thus inaugurated of mutual discussion and support be continued. The Military and Naval physicians are as much a part of the medical profession as is the surgeon, the ophthalmologist, the orthopedist, the laryngologist or any other medical specialist. They are however, distinctly specialists and as such must needs be recognized and considered by the profession at large. The Association of Military Surgeons congratulates both the public services and the general profession upon the cordial sympathy manifested between them at this meeting and ventures to express a hope that the full recognition of the mutual interest existing between them may henceforward prevail in America.

POISONING FROM CANNED MEAT.

IN the *Norsk Tidsskrift for Militar Medicin* Messrs. M. Geirsvold and Th. Steenberg quote the case of an epidemic of one hundred light cases of gastro-intestinal fever coming on during the march of a battalion in 1901. The cause was found to be the conserved foods used for dinner. The cans had apparently been all right and their contents of good quality, being composed of fresh meat with soup and vegetables. To determine the cause of the poisoning twenty cans of the same lot were carefully examined at first exteriorly and later by close study of their contents. A bacteriological examination with various control tests was made. The culture experiments showed that the contents of the cans were entirely sterile although live microbes were found. Experiments on animals were made without any inconvenience. The authors remark that every normal appearing can is to be regarded as sterile, only occasionally containing live microbes. This, however, does not exclude previous bacterial decomposition which is stopped but not made innocuous by sterilization, which was the case in the epidemic which induced this investigation. To prevent a recurrence of such decomposition the Norwegian medical director has issued regulations requiring the greatest care and the most extreme precaution upon the part of manufacturers of such products—HANS DAAE.

Reviews of Books.

WOUNDS IN WAR.*

THE first edition of Stevenson's *Wounds in War* was brought out at the psychological moment to attract the attention of American military medical officers during the brief flurry with Spain in regard to the freedom of Cuba. It was promptly recognized as an authoritative presentation of modern military surgery and became a part of the equipment of every regimental, field and general hospital in the United States Service. Since that time Surgeon General Stevenson has continued his studies in military surgery upon the lines laid out in his manual, carefully assimilating the lessons of later hostilities, and in particular those of the Anglo-Boer war, until he has created what is rather a new book than a new edition, albeit issued as a second edition of the former treatise. The new work is a quarter larger than its predecessor and has more than double the number of illustrations. It has but one more chapter,—i.e. one on "the use of x-rays in war hospitals,"—but a rearrangement of the text substitutes a chapter on "traumatic aneurisms, arterio-venous communications and injuries to peripheral nerves" for the old chapter on "injuries of the pelvis," which are now considered in connection with the abdomen.

In his preface the author discusses the situation of military surgery in general, adverts to the erroneous impression of some that military surgery is not a specialty, and sums up the true situation by the claim, "that the injuries met with and the means with which and the circumstances under which they [wounds in war] have to be treated, are different on a campaign to those of a

**Wounds in War*. The Mechanism of their Production and their Treatment. By Surgeon General W. F. STEVENSON, C. B., A. M. S. Second Edition. 8vo; pp. 511; 127 illustrations. London and New York, Longmans, Green & Co., 1904.

civil hospital. If this be granted, it must also be admitted that the peculiarities of gunshot wounds, and the circumstances which govern their treatment, have to be learned by study and experience, and that the subject matter of such study and experience may very properly be referred to as 'military surgery'." This is a most important declaration and conforms entirely with the attitude taken by the Association of Military Surgeons of the United States in connection with this point.

The Boer war is a mine of military surgical information from which most of the new material is drawn. The author is in error, however, when he refers to "the four years of the Spanish-American war," which really occupied a few days less than four months, although the consequent occupation of Cuba and the suppression of the Philippine insurrection consumed a considerable time thereafter.

His views upon the pathology and treatment of gunshot wounds are conservative and progressive and are in line with the best conclusions of other modern authorities. He advises the expectant treatment of intestinal wounds, for instance, holding that the unfavorable conditions as regards aseptic surgery and the usually crowded state of the field hospitals during the period when these operations are likely to be of use, are prohibitive.

The chapter on x-ray work in war hospitals is complete and explicit. Skiagraphy is not considered practicable in regimental or field hospitals but is of great importance and value in permanent and base hospitals. The work of Borden during the Spanish war is not referred to, but the lessons of the Boer war are abundantly detailed and the methods of applying the discovery of Roentgen clearly described and illustrated.

The book is so good that a copy should be in the hands of every military surgeon. The temptation to take up its teachings in detail and in succession is great and the iron limits of space alone prevent a fuller discussion in these pages.

Original Memoirs.

THE MEDICAL TREATMENT OF APPENDICITIS IN ACCORDANCE WITH THE MODERN PRINCIPLES OF THERAPEUTICS.

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TWELFTH ANNUAL MEETINGS.

FROM a group of different reactions disease is clinically constituted, this result being due to the complexity of the organism upon which every element reacts when one of its parts becomes pathologically affected. These reactions take place everywhere: they exist in the organ affected; in the nervous, circulatory and respiratory systems; in the digestive apparatus; in the kidneys; in the liver; in a word, all the organs and all the anatomical elements of the organs become the seat of reaction during any pathological process. To the intensity of the reaction in one organ, more than in that of another, is due the character of the disease and the clinical varieties of the affections thereby created. So that we must always look upon disease,—clinically and pathologically,—in a general way.

Considered in this light, appendicitis does not mean simply an inflammation of the appendix, nor does pneumonia signify merely an inflammatory process of the lungs, but rather an inflammation of the appendix or an inflammation of the lungs represents a reactive process,—the effect of a general cause that has wrought its results in the appendix or in the lungs. This pathological axiom we cannot deny, confirmed as it is by daily clinical obser-

vation, and so when we come to the therapeutical considerations of the disease, we must find them consistent with the maxims of Pathology.

If we regard our judgment as correct in the adoption of symptomatic therapeutics, consisting as it does in an amelioration of the distressing symptoms of the disease, or of its morbid manifestations,—dangerous because excessive,—notwithstanding this satisfaction as to our judgment of the results attendant upon symptomatic therapeutics; still, if we do not from Pathological Therapeutics (*therapeutics causalis*) also seek for the resolution of the pathological *incognita*,—cause and effect of the disease,—our conclusion must remain unsustained. Therapeutics Causalis became, at a later period, modern therapeutics as a natural consequence of modern scientific conquests, personified in Virchow and Pasteur, the founders of Pathology and Bacteriology.

Symptomatic Therapeutics is identical with the therapeutics of Galen, whose aphorisms exist unchanged after so many centuries of medical life.

Its principles are :

Treat heat with cold.

Treat cold with heat.

Treat dryness with moisture.

Treat moisture with dryness,

and, at the present time, all our new discoveries are only successful as they bend themselves to the doctrine of Galen.

So terpinæ and ipecac are valuable drugs in the period of decline of bronchitis because they produce free expectoration.

Jaborandi and smilax, and all the diaphoretics are useful, because they produce free exudation,—in other words, because they excite moisture while a dry condition exists.

In a similar manner analgesinæ, tolypirinæ kairinæ, thermodynæ and all the antipyretics are useful because, through their hæmolitic action they decrease high temperature ; that is, they produce cold where heat exists, and so on.

Analgesia, in so far as it relates to therapeutics is the only therapeutic necessity not contemplated by the old medical doc-

trines, and that, of course, is not due to lack of conception of our physical needs, but, in truth, to a lack of the symptoms of physical pain.

In those ancient times, when the Roman, Muzio Scaevola, could smile as he beheld his right arm consumed in the devouring flames, and when the gladiator slave, with his flesh torn in pieces by wild animals, and lying helpless in the arena, could calmly utter his dying words: "Ave Caesar, morituri te salutant,"—to me, it seems that the conception of pain requiring morphine could not then really have existed.

The victories of Virchow and Pasteur the clearer understanding of *causae causarum* has raised modern therapeutics to the level of Science, and within a few years the end of empiricism will be reached.

The followers of Hahneman and Mary Baker Eddy are still the living Kariatids of a philosophical and empirical therapeutics, based on ignorance and credulity. They, too, will disappear as soon as we deprive our therapeutic methods of the non-scientific base.

For the modern physician disease must be the manifestation of a toxic cause.

This toxic cause may be exogenous, that is, it may originate outside the body, or, endogenous, viz: it may originate within the body. In speaking of a toxic cause, or of a toxic product, I mean to include either the chemical products, due to defective metabolism, or the micro-organisms, and the toxinae elaborated by micro-organisms; in a word, all the organic and inorganic elements of exogenic or endogenic origin present in the organism that, from the fact of their incompatibility with the vital functions of the organism, engender diseases therein.

If bacteriology, and the chemistry of bacteriology, and pure organic chemistry were perfect, they would show us that no disease, of a general character, exists, without a bacteriological or chemical foundation; that when, in a disease, the micro-organism itself is not found, its products may still be found, or those of some other chemical elements, the results of altered metabolism.

When the day shall arrive in which clinical chemistry and bacteriology will have become perfected, then will, likewise, be perfected the doctrine of disease, and that of therapeutics. To this period we are approaching, and even now it is nearer than we believe.

Had Lister been a physician instead of a surgeon, Therapeutics would have already become a positive Science, because he would have directed our thought in medicine in a similar rational direction to that in which surgery was guided.

What has Lister done? Conscious of the discoveries of Pasteur, he understood that infections from a surgical point of view were due to a bacteriological cause; that an open wound is an open door to the colonization of microbes in the organism; that the only way of avoiding infections is by rendering the wounded field unbearable to micro-organisms, and so it is that through such knowledge antisepsis has sealed the victory for surgery.

But, in medicine, the final word has not, as yet, been spoken. To my understanding, disease is a closed wound in which the colonization of microbes and the action of toxinae accomplish their destructive work far from our control. The therapeutic equation to be resolved is the same as that resolved by surgery, with the difference that for the term *local antisepsis* must be substituted the term *general antisepsis*, and I regard it as a singular thing that we physicians, with the fact in evidence before us, will too often lose time in trusting to the effect of our prescriptions, while already we treat successfully by the direct injections of therapeutic agents in the blood, syphilis, malaria, diphtheria, puerperal fever, and many other diseases.

These facts demonstrate that internal antisepsis is the basis of therapeutics causalis, and that the blood is the clinical excipient of therapeutic elements, and it being the bearer and transmitter of all toxinae,—endogenous and exogenous,—assimilated from the organism, it follows that we may confide to it, the curative agents whose therapeutic action will reach the most remote regions of the human system,—regions beyond the reach of the knife, or any other remedial agent.

Modern therapeutics must ask of its sister sciences,—bacteri-

ology and chemistry,—a study of the chemical reactions of the blood in different diseases, and in this way discover the therapeutic agent which introduced into the blood may neutralize the toxinae in its circulation.

Of course, in this respect, the term antisepsis possesses a broader signification, and its meaning becomes defined as that of a neutralizing agent of the heterogenous elements causing the disease.

My idea, thus advanced, has been confirmed by personal experiences in different cases.

The appendix must be considered as a tubular ganglion,—taking part in the defense of the organism during infections,—and receiving germs, either from the blood or the lymphatics, and for that reason appendicitis may become a complication in cases of scarlet fever, pneumonia, erysipelas, parotitis and so forth. More than this: In the case of old persons, who were never affected with appendicitis during their life-time, there may be found at the post mortem examination sclerosis of the appendix with seclusion of the appendicular canal. The existence of such a fact is evidence that appendicitis is always the local effect of a general toxic cause.

Hence it follows that the principal aim of our treatment causalis must be in aggression of the infective cause of appendicitis, while in the meantime our symptomatic treatment will reduce the alarming and distressing symptoms of the disease, and favor the course of the natural processes of repair.

Symptomatic Treatment. The majority of physicians of all degrees of eminence in America, and abroad, seem to have selected, as a formula of predilection, for the symptomatic treatment of appendicitis, the following :

- (a.) Internal administration of opium.
- (b.) Local application of ice.

Convinced that this treatment is essentially wrong, I am a resolute opposer of it, and will, in continuance state the grounds of my opposition.

(a.) Opium,—as these physicians say,—is given to quiet the pains, and to check the intestinal contractions.

Now, to quiet pains in appendicitis means to mask the dangers without diminishing them, while, in the meantime, we depress the general nervous activity, and in this way, lessen the natural power of defense in the organism.

According to my view of the subject, the general depressing effect of opium upon the nervous system constitutes an absolute counter-indication to the use of opium, or its alkaloids, in appendicitis. We must not forget that, in all inflammatory processes the neuro-paralysis,—partial or general,—causes to become more rapid the phases of inflammation, and that the final result, supuration, is more quickly reached.

If the same amount of septic substance be injected in the posterior limbs of a rabbit, from one of whose legs the sciatic nerve has been previously cut, we may observe that, in the leg deprived of the sciatic nerve, the process of suppuration will have become more complete, while in the leg not thus deprived, the process of inflammation remains in the earliest stage.

So, in the case of two patients, one of whom has been treated with opium, and the other without it, will be observed the reactions of appendicitis in the same correspondingly distinct degree.

As to the action of opium on the intestines, the belief that through it the intestinal contractions become checked, is a physiological misconception.

It was demonstrated long ago by Mr. Pal, an Austrian physiologist, that the putting of a balloon in the small or large intestines of a dog, to whom he had previously administered morphine, caused a considerable increase in the intestinal contractions, which contractions continued even after the resection of the intestinal nerves.

Thus it is apparent that opium and morphine, produce an exciting action upon the intestinal ganglions, and that this action is transmitted to the circular and longitudinal fibres of the intestines.

Such experiments demonstrate that opium, physiologically produces a quieting action upon the intestines on account of its regulating its contractions, and not on account of its paralyzing effect.

Such being the case, opium is also useless as an intestinal neuro-paralytic.

(b.) Local application of Ice.

Lauder Brunton has demonstrated, since the year 1885, that cold applications diminish superficial phlogosis, but that they materially increase deep phlogosis.

A confirmation of this fact is found by introducing a thermometer into the abdomen of a rabbit whose body has been previously covered with ice, after which, a rapid increase of the internal temperature follows.

Thus, as a natural consequence of our local applications of ice in appendicitis, a more rapid course is given to all the phases of inflammation, and, frequently, suppuration, that could have been avoided, occurs, through the employment of our therapeutic resources.

Various considerations regarding the essential trouble in cases of appendicitis, the first of which, is constipation, have guided me in the adoption of my symptomatic treatment in such cases.

Constipation facilitates the auto-absorption of toxoinfective products,—results of the abnormal fermentations taking place in the intestines during any process of coprostasis. As coprostasis, in itself, is sufficient to produce high temperature, thereby increasing the intestinal fermentations, it follows that constipation is the bicornous element that starts and feeds the first symptoms of appendicitis.

The fact that constipation always accompanies appendicitis, and that all patients affected by this disease suffer from constipation, has led me to conclude that the appendix is, perhaps, the governing centre of the secretory intestinal functions, and, for this reason, as well as for other reasons, I am strongly opposed to the new practice of surgery which deprives persons, coming under the knife, of a healthy appendix.

If we do not exactly understand the functions of the appendix, we, nevertheless, know that disease, and the functions of an organ are in direct rapport, and that the pathology of an organ is complicated in proportion to its functional importance. At the

beginning of an attack of appendicitis, I direct my attention carefully to the removal of faecal stasis.

The act of defaecation is the final result of the complex functionality of the digestive apparatus. It is to the co-ordination of the sensitive motor, vaso-motor, and secretory elements of the digestive apparatus that we owe the accomplishment of the defaecative act.

Should we attempt to apply for each element the corresponding curative factor of its depressed functionality, we would become polypharmacists, and our results would be only complete failures.

Which one, then, of these elements must be taken into consideration?

During a general infectious process, two intrinsic conditions are present in constipation, viz: lack of tonus of the muscular fibres of the intestines, and lack of the neutralizing agent of the products of fermentation taking place in the intestines; the two conditions that prevent the mechanical action of the intestines thereby favoring the absorption of their products of fermentation.

In the establishment of these two conditions, two principal causes concur, viz:

1st. A *general cause*, viz: the nervous depression,—the inseparable companion of all infectious processes.

2nd. A *local cause*., viz: the insufficiency or absence of bilious secretion.

Bile, on account of the action of its acids on the intestinal muscular fibres, stimulates intestinal contraction, and, its absence causes and maintains constipation. The products of the decomposition of bile,—especially cholic acid,—possesses a powerful anti-putrid action, equal to that of chloridric acid, for which reason the absorption of putrid products joins itself to constipation in the absence of the secretion of bile.

In the adoption of my symptomatic treatment it is my special aim to provide for the relief of the two conditions above mentioned, and thus, in a case of appendicitis, my preliminary treatment is the following:

1st. The administration of salicylate of sodium; dose 0.75 centigrammes, to be given twice, with an interval of one hour.

Salicylate is a cholagogue, and an anti-thermic.

(a.) As a cholagogue salicylate produces an augmentation in the secretion of bile,—an augmentation whose maximum is reached two hours after its administration. The fluid and solid elements of the bile are increased, but the fluid element increases in a larger proportion, thereby producing a diminution of consistence in the bile, and greater fluidity.

It must, however, be remembered that, notwithstanding the cholagogue action of the salicylate, the elimination of bile does not increase unless we associate with the salicylate the administration of a therapeutic agent, which, stimulating the peristaltic action of the intestines, prevents the absorption of the bile already secreted.

(b.) Although as a rule, salicylate produces a diminution of temperature, yet such a diminution is not always accompanied by a corresponding modification of the pulse. The antithermic action of salicylate is more rapid and pronounced than that of quinine, but requires, however, larger doses, as usually two grammes of salicylate are necessary to produce the same antithermic action as that produced by one gramme of sulphate of quinine. I remember, however, one particular case under my care in which there was a diminution of three degrees of temperature two hours after the administration of 1.50 grammes of salicylate. In order to avoid the irritating action of the salicylate upon the gastric mucous membrane, I use as an excipient, vichy water (Celestins). Three hours after the administration of salicylate, I begin to administer calomel in doses of 0.05 centigrammes each, to be taken one hour apart, until the first intestinal evacuation occurs. Calomel acts as an intestinal antiseptic, as a cholagogue laxative diuretic, and as a stimulant of the pancreatic secretions.

(c.) As an intestinal antiseptic, it destroys the organized ferments without modifying the amorphous ones, (ptyaline, gastric juice, and pancreatic juice). One of its principal advantages as an intestinal antiseptic is, that its antiseptic power increases

with the increase of temperature; in that way, making its action proportionate to the needs of the organism.

(d.) As a chologogue calomel does not increase the secretion of bile, but that secretion is increased because of the excitation given by it to the contractions of the bile-ducts, thus completing the action of salicylate, the value of which, lies in increasing the secretion, but not the excretion of bile.

(e.) As a laxative calomel increases the peristalsis intestinalis already started by the bile, and produces evacuations. I have observed that the colic pains produced by calomel are always modified when salicylate has been previously given; this may, however, be due to the regulating action of bile on the contractions of the intestinal muscular fibres.

(f.) As a diuretic calomel diminishes the hydremia febrilis, and, as a natural consequence, the amount of toxinae in the circulation becomes diminished also, and concurs with the diminution of temperature.

(g.) As a stimulant of the pancreatic secretions it aids in, or accomplishes entirely, the pancreatic digestion of the undigested nutritive elements present in the digestive apparatus at the moment of the attack of appendicitis.

But, as previously stated, another cause concurs in the establishment of the two above mentioned conditions, this cause being the general nervous depression accompanying all the infectious processes, and which, in appendicitis, constitutes a very serious circumstance facilitating as it does, the development of suppuration.

Besides constipation, the pain symptom constitutes another distressing feature of the attack, and to this symptom, more than to anything else, is attributable the use of opium by physicians for its alleviation, and for the purpose of masking to the patient, and to those in attendance, the real dangers of the disease.

The necessity of relieving pain, internal congestion of the organs, depression of the nervous system, and high temperature have induced me to add to the symptomatic treatment of appendicitis the use of warm balneation, and I will state that, so far, its good results have strengthened my opinions in this regard.

The warm bath produces a general tonic sedative effect on the nervous system, in all states of asthenia; it equilibrates thermogenesis; it decongests the internal organs,—produces analgesia,—and relieves all pains of a colic type; besides, it has an antitoxic effect since it increases the reactive processes of metabolism, produces free exudation, also relieves the *iscuriae paradoxae*,—a symptom not uncommon in all infectious diseases.

During an epidemic of cholera in Sicily, in 1884, I used upon myself the hot bath, and was able thereby to stop at once the distressing intestinal cramps, characteristic of cholera, which, even in a small degree, fifty drops of laudanum had failed to relieve. My present regular practice in relieving the pains and general symptoms in any attack of acute indigestion is through the use of the warm bath, and I find it especially beneficial in cases of *pneumatosis gastro-intestinalis* when a syncopal state might endanger the life of the patient.

In appendicitis, I prescribe the bath at any period of the attack, and during it the other symptomatic and causal treatments are producing their effect, because it not only does not interfere with their action, but, on the contrary, becomes to them a useful adjunct.

Also, I prescribe the bath when the most remote suspicion of appendicitis exists.

The temperature of the water varies from 25° to 35° , according to its adaptability to the physical condition of the patient in receiving the temporary nervous shock, caused by an immersion of the body in hot water. Sometimes, I prefer to plunge the patient in a bath at the temperature of 25° , raising it gradually to that of 40° , thus avoiding the shock.

During the bath I gave small doses of cold champagne.

If a hot bath is not at my disposal, I use a hot pack, obtaining similar results thereby.

Pain, and the general condition of the patient form the only guide to the use and length of balneation, as well as to its repetition as often as may be thought necessary.

Does the hot bath always relieve pain? No. It may increase the pain to its highest degree, but such a recrudescence

must constitute a warning for the physician, showing, as it does, the presence of pus in the region of the appendix. In other words, an increase of pain in such a case is the clinical equivalent of suppuration. This fact is common to all kinds of suppurations, and, for this reason, the hot bath or the hot pack may be used as a means of diagnosis of the presence of pus.

Dr. Lewin, of Berlin, relates the case of an inflammation of the knee-joints, following erysipelas, in which tapping did not show the presence of pus in the articulation, but in which the use of the hot pack had increased the pain, and the opening of the articulation revealed the presence of phlegmon periarticularis.

As an adjunct to the relief of coprostasis, I administer, at the beginning of an attack, an enema of warm water and chloride of sodium—solution 5%, temperature from 18° to 28° centgr., quantity 400 grammes—to be injected at a low pressure.

Warm water softens the faecal matter, stimulates the contractility of the intestinal muscular fibres, and excites the rectal secretions. It often happens that the presence of a hard faecal mass in the ampulla rectalis constitutes a serious mechanical obstacle to the evacuation of the intestine; also it occurs, frequently that the removal of such an obstacle suffices to bring on a free intestinal evacuation, but, again it may happen that through the hardness of the rectal faecal mass the topic use of a long spoon may become necessary as a mechanical aid to the action of the water.

I find, also, such a practice necessary at the beginning of labor, when rectal coprostasis constitutes an element of distocia similar to that given by a narrow pelvis. Hence, in general, I prescribe the enemata in the case of a pregnant woman, and this always at the appearance of the first labor pain.

In the case of appendicitis, I continue the administration of the enema every twelve hours; adding to the chloride of sodium equal parts of sulphate of sodium, and so continue until the watery discharge becomes colorless.

Treatment Causalis.—At the present time, a knowledge of the bacteriology of appendicitis teaches us that there exists not only one bacteriological element capable of producing appendi-

citis, but that many other elements likewise exist which must be considered in speaking of the diverse forms of this disease.

Still, we are not yet acquainted with the special characteristics inherent in every form of appendicitis, notwithstanding the certainty of their existence. Appendicitis due to streptococcus must be clinically differentiable from appendicitis due to bacterium coli; just as is clinically differentiable the meningo-typhoid from the tubercular meningitis.

The necessity of recognizing clinical features of a disease according to the different bacteriological element cause of that disease is, at the present moment, acknowledged by the majority of physicians. In France, four years ago, for the first time Dieulafoy described the peritonitis due to streptococcus as clinically differentiable from the tubercular peritonitis.

Such an attempt constitutes a conquest for modern pathology. The clinicians of yesterday were accustomed to think anatomically in the determination of diagnosis, while the clinicians of today must think anatomically and bacteriologically.

Of what use would be the advancement of bacteriology as a science if its results could not be clinically applied?

As in the diagnosis of cirrhosis of Hanot we are guided by our knowledge of the anatomo-pathological condition of the liver in that disease,—so, likewise in the diagnosis of appendicitis we ought to be guided by the anatomo-pathological condition of the appendix and by its bacteriological factor.

Clinicians and bacteriologists must aid each other in the research for the connecting lines existing between clinical symptoms and bacteriological elements, but, unfortunately, bacteriologists and clinicians work apart, and the bacteriologist of to-day is not enough of a clinician, and the clinician is not enough of a bacteriologist. For the progress of medical science the necessity certainly exists that these two factors should work together, as up to this time the anatomo-pathologist and the clinician have already done.

Only, through such harmony of action will it become possible for the physician, who has not the time to acquaint himself more fully with the knowledge of bacteriology to know that such

or such a form of disease is due to such or such a bacteriological element, in consequence of which his treatment of the disease must necessarily, tend toward a neutralization of said infectious element.

But, so long as the causes of appendicitis are many, and our clinical knowledge as to the differentiation of its diverse forms is incomplete, we must take, as a therapeutic guide the general views pertaining to infections, in general.

Call *x* the infective agent, micro-organism, or *toxinae*; call appendicitis the disease produced,—neutralization of the *toxinae*, or destruction of the micro-organism must be the therapeutic causalis.

Still the fact that appendicitis is connected with so many diseases having, as a base a specific organism, gives us to understand that the origin of the disease is microbic and that the destruction of its micro-organism will be sufficient to eliminate the cause of infection.

The best way of destroying the source of infection is by rendering the surroundings of the infective agent inadapted to its life and to its reproduction.

As I have before remarked blood and lymph are the bearers and transmitters of any infective element, and the localization of the infective element in a special organ or region of the body is a simple process of metastasis.

The microbes or *toxinae*, are transported by the lymphatic or blood vessels into such regions of the body as offer conditions most suitable for the accomplishment of their reactive processes, just as in a similar manner cancer cells are transported to those parts of the body wherein may be reproduced the malignant growths from which they themselves originated.

Now, if our therapeutic agent should follow the same route as that followed by the infective element, its action, general and local, would take effect at such points as presented a necessity for its action. Thus, we may confide to the blood our curative agent, while the question to be understood is,—which curative agent is preferable? In my trial treatment I selected the one upon which has been founded local antiseptis, viz., carbolic acid. I would have

preferred the endovenous injections to the intrans-muscular, had not such a practice required special care, much time and ready assistance, all of which, very frequently, are not at command.

The formula adopted is the following:—

Acid. carbolicum.....	0.20 centigr.
Aquam.....	10 gram.
Alcohol pure.....	2

I inject 1 c. c. of this solution every two hours during the attack.

After the second injection I have always observed a diminution of temperature, and also a diminution of the nervous erethism peculiar to the disease. Of course, I cannot, with certainty, say that a great deal is not due also to my symptomatic treatment, and especially to the use of the bath, but carbolic acid of itself, is known to have a paralyzing action on the nervous centres, and its effect is apparently very marked, in all cases of nervous erethism.

Such a diminution of temperature constitutes a mere temporary effect if the general auto-intoxication is still at its primary stage,—in fact, on suspending the treatment, after the first or second injection, we may observe three or four hours later, that the patient is seized with a sudden shivering followed immediately by a rise of temperature.

But, if we stop the injections after their fifth or sixth administration and after the symptomatic treatment has aided in the elimination of the toxic products from the organism, we may observe that the temperature remains stationary. An examination of the blood instituted after the fifth or sixth injection then shows a diminution of the fibrin corresponding to a diminution of its phlegmatic condition—a condition peculiar to all infectious diseases.

Such a haematological result proves that the blood, like any other tissue, resents the effect of antiseptics, and that its inflammatory reaction diminishes when antiseptics diminishes the virulence of the heterogenous elements in its circulation.

The conception, by the ancients, of *haemitis*, or inflammation of the blood, was not altogether wrong, since its phlegmatic condition is present during any infectious disease, and a diminution of this condition always shows a decline of the infection.

In three cases, treated by me, I injected in two of them 0.25 centigr. and in the other 35 centgr. of carbolic acid within the first three days of the attack, continuing the injection of 0.05 centgr. a day during the next six days.

In one case at the third day, and in two cases at the end of the fourth day, the conditions of pulse and temperature, had become normal, and the abnormal rigidity of the abdominal walls had completely disappeared.

Proper regimen and therapeutic care was followed during the convalescence.

The number of cases thus treated is certainly very small to be spoken of in the *treatment of appendicitis*, but the results are not discouraging, and I, therefore, believe that such a course of treatment could be adopted in cases wherein no possibility of surgical intervention exists.

Thus it might chance that during the period of expectation, in awaiting the use of the dread knife,—medical intervention would be sufficient to demonstrate that nothing in this world is actually indispensable,—not excepting, even, the knife in appendicitis.

MILITARY HOSPITALS IN JAPAN.

THE Japanese Government is carrying out its well known purpose of providing the best possible treatment for the sick and injured, not only of its own forces but also of the enemy. Fine base hospitals have been organized at Tokyo, Hiroshima and Matsuyama and Drs. Hashimoto, Sato and Kikuchi have respectively been placed in charge. Dr. Hashimoto is a retired Surgeon General of the Army and Physician in Ordinary to the Mikado, while the other members are among the most distinguished and accomplished of Japanese medical men. These hospitals are organized and conducted according to the latest and most approved modern methods. The nurses are provided by the Red Cross Society and have had the advantage of the careful and intelligent training which these women have been receiving for a number of years. The equipment of the hospitals is equal in grade to the personnel.

AN EXTERNAL SUTURE.

BY CAPTAIN THOMAS PAGE GRANT,

LOUISVILLE, KENTUCKY.

ASSISTANT SURGEON, RETIRED, IN THE KENTUCKY
STATE GUARD.

I DESIRE to show a simple dressing, a substitute for the suture, which I devised some fifteen years ago to meet an emergency in the shape of a badly contused and lacerated wound on the forehead of a young man of my town. The results in that case were so very pleasing that I have since used it repeatedly with great comfort to myself, and my patients. I believe that all of us have found that it is such little things that make for success or failure in our profession, perhaps more than in any other. My results from the use of this dressing have been highly satisfactory, as in the majority of my cases I have gotten union with a much less scar than I probably would have gotten with any other dressing.

The material for this external suture are: strips of adhesive plaster,—I like isinglass plaster on muslin best, as less likely to slip or creep on the skin; some ordinary old-fashioned hooks, such as ladies use to fasten their dresses,—old fashioned hooks, not those with a “hump”; and some rubber bands, number 7 or 8 I like best, but if it is desired to make more tension, then a longer or heavier band may be used, and more twists be taken over the hooks.

The plaster should be either $\frac{1}{2}$ or $\frac{3}{4}$ of an inch wide, the narrow being for a single hook, while the wide for two hooks. My experience is that more than two hooks on a strip does not work satisfactorily, as it is too wide to lay well on the surface. The hooks and rubber bands should be boiled to sterilize them, and then put into a bottle and kept well stopped. Your plaster of course is aseptic, and kept so.

Having cut your plaster the desired width, you make two holes for each hook to be used, the holes to be about one inch from one end of strip and a quarter of an inch apart (nearer if small hooks are used), and into these holes the hooks are put, as shown in the sample which you are examining. The rings on the back end of the hooks are to be open so to better catch in the plaster.

Having put in the hooks, you turn the free end of the plaster back on itself, and make a double thickness under the hooks. This prevents the plaster from adhering too close to the wound, and



The Elements of the External Suture.

- Fig. 1. The Plaster, ready for the hook.
- Fig. 2. The Plaster, with the hook in it.
- Fig. 3. The Rubber Band, with which the suture is laced.
- Fig. 4. The Hook, showing the manner in which the rings are opened.

keeps the hooks from pressing too much on the edges of the wound. The plaster may be as long as is thought best to make the proper tension, going back as far from the edge of the wound as is deemed best to close the wound, and it should be brought to within from a half an inch to an inch of the edge of the wound, not closer. When it has become well "set," or adheres properly, which only takes a minute or two, begin lacing the rubber band from one hook to its fellow of the opposite side, drawing as tight as may be needed to bring the lips together. Then take the next pair of hooks, and so on, until all are drawn together, dust



An External Suture in Use.

1. A single suture, laced, closing the wound. (on face)
2. A double suture, not laced. " "
3. Single suture, laced, with a pad, or compress under it. (on hand.)

the wound with iodoform or other powder and cover with a gauze pad and a bandage.

It may be desirable sometimes to put a pad of gauze under the hooks; this may be done either before the rubbers are tightened, or better after the wound is drawn together. To do this, clip the rubbers one at a time, placing the pad under the plaster, and relacing, before cutting the next rubber. If it is desired to make the dressing waterproof, the plasters may be painted with a little collodion, then they can be washed, if needs be. (A solution of rubber in bisulphide of carbon or other solvent may be used instead of collodion.) But care must be taken not to be in too much of a hurry to begin the lacing before the plaster is well dried else you may pull it loose.

Some of the advantages, that have suggested themselves to me, are :

1. The possibility of using it in many of those cases where the contusion, and laceration is so extensive as to prevent the use of a thread suture,—being especially adapted to contused and lacerated wounds of the face or head, as from a fall or a blow.

2. No slight advantage is the freedom from stitch wounds, and the danger of stitch abscesses, which are so liable to occur in contused wounds from infection at the time of injury, and which the utmost care cannot prevent when the needle is used.

3. The rubber bands allow for almost any amount of swelling, which always occurs in greater or less degree in all contused wounds, and which often calls for the clipping of the stitches before union, and which not infrequently cause the stitches to ulcerate out between the visits of the surgeon. Its use makes it possible to adapt the edges of a contused wound into a normal position, or nearly so, and with the rubber bands to draw the lips together, and adjust them, and if needs be, re-adjust them.

This can be done when this dressing is used with greater ease, and I think with more certainty, than is possible with a thread suture. And that too, in wounds having considerable laceration of the soft parts.

I suppose that there are none of us who have not at times experienced considerable difficulty in closing a bleeding wound

with adhesive plaster, or perhaps even with a needle, on account of the oozing blood or perhaps positive hemorrhage; or at times increased the hemorrhage by the use of the needle in suturing. No doubt but, in cases of contused and lacerated wounds, you have often been obliged to leave the wound open, because the stitches would not hold, and plaster would not stick. In cases of this kind this dressing is particularly effective.

Make your strips of plaster long enough to go well back on the sound tissue, bring it across the contusion to within an inch of the open wound, on each side, and then with the rubber bands draw the plaster together, thereby closing the wound, and making just the desired tension. This will almost certainly arrest the oozing, and sometimes even stop a positive hemorrhage. With this dressing you can regulate just the amount of tension you want on a wound, which is impossible with the ordinary suture, or with adhesive plaster as it is usually applied.

Hence the possibilities of Cosmetic Surgery in many cases of contused and lacerated wounds, are better with this dressing than with either the ordinary suture, or with the adhesive plaster. While this dressing is especially recommended in cases of lacerated wounds, especially those with more or less contusion of the soft tissue which makes it undesirable to use the ordinary suture, it will often be found useful in cases of cuts, both accidental and operative.

And particularly is it useful in emergency dressing, where it is inconvenient or inexpedient to use the needle, on account of the conditions, as the inability to properly cleanse the wound, yet where it is best to close the wound to stop bleeding and prevent gaping, until the case can be taken to a more suitable place for dressing.

This dressing is not offered as a universal substitute for the needle, but in very many cases of minor surgery its use will afford both comfort and success to the surgeon, and save the patient from a large scar, and perhaps from much suffering. And the results will generally be so pleasing that even the omnipresent "Ambulance Chaser" will not be able to criticise it.

THE NEW HOSPITAL CORPS DRILL REGULATIONS FOR THE UNITED STATES ARMY.

BY CAPTAIN FREDERICK P. REYNOLDS,
MEDICAL DEPARTMENT, UNITED STATES ARMY.



Private of the Hospital Corps in
Field Uniform and Equipment.

IN May, 1903, a Board of Medical Officers consisting of Major Charles F. Mason, Captain Francis A. Winter, and Captain Frederick P. Reynolds, Medical Department, U. S. Army, was convened for the purpose of revising the Hospital Corps Drill Regulations, to make recommendations for a uniform system of Hospital Corps instruction throughout the Army, and to consider the advisability of providing a knife as a part of the equipment of the Hospital Corps.

The work of the Board was submitted in February, 1904, and was approved by the Surgeon General and Chief of Staff. The schemes for instruction in companies and in detachments have been published, and by direction of the Surgeon General all Hospital Corps instruction will in future conform to these schemes.

THE HOSPITAL CORPS KNIFE.

Nearly all medical officers reported in favor of a knife as part of

the Hospital Corps field equipment, only six recording themselves as opposed. The objections of the latter were : that the knife added weight to the equipment, that it was unnecessary, and that its use was in violation of the Geneva Convention. Concerning the first of these objections, the Board is of the opinion that the additional two pounds will not be a burden to the Hospital Corps man, his equipment being much lighter than that of other soldiers, and that the utility of the instrument more than counterbalances the

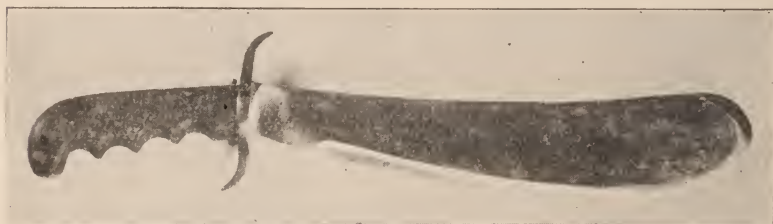


Hospital Corps Squad Showing Equipment.

additional weight. In reply to the assertion that the carrying of a knife by a neutralized person is in violation of the Geneva Convention, the following opinion of the Judge Advocate General of the Army is submitted. "The knife which it is proposed to issue to members of the Hospital Corps is intended to be used, primarily, in the performance of their duties and is not intended as an offensive weapon, though it is susceptible of use in self defense should occasion for such arise. The persons who are neutralized by the Geneva Convention enjoy the privileges con-

ferred by that treaty while they are engaged in performance of certain duties in respect to the sick and wounded in time of war. If they take part in hostilities, and use any weapon whatever *against the enemy*, they forfeit their privilege; but the mere possession of side arms to be used solely in self defense or in the performance of their legitimate duties, is not prohibited, either expressly or by necessary implication, in that convention. It is, therefore, the opinion of this office that the issue of such a knife as is herein described would not be a violation of the Geneva Convention."

The general shape of the knife is similar to that of the Filipino working bolo. The blade is 12 inches long, its greatest width $2\frac{1}{2}$ inches. The blade is $\frac{3}{8}$ in. in thickness at the handle, gradually tapering to $\frac{1}{8}$ in. at the point. The edge is dull for $1\frac{1}{2}$ in. at



The Hospital Corps Knife.

the handle, from this point the edge is bevelled on one side to and around the point. Weight of knife, $1\frac{1}{2}$ lbs, with scabbard, 2 lbs.

"In reaching its decision as to the form of the knife, the Board considered the following uses to which it would probably be put: to prepare extemporized splints and to clear away brush and undergrowth for the passage of men and litters, to make extemporized litters, cut grass and brush for beds, to cut fire wood, to improvise tent pegs and poles, to drive tent pegs, to open packages, dig holes and trenches, dress fowl, cut meat and perhaps to butcher, and in emergency, to be used as a weapon of defense."

THE DRILL REGULATIONS.

The most important changes in the revision are in the reduction of the litter squad from four to two bearers, and in the

return to the system of attached litter slings, in which the sling is made a permanently fixed part of the litter instead of a part of the personal equipment of the men as at present. These changes have necessitated an entire re-writing of the regulations and in the opinion of the Board a great gain in simplicity, execution and explanation has been attained.

A large number of reports from medical officers were received and were given careful consideration. The result of this consideration, together with the experience of the members of the Board covering a period of nearly a year, have convinced



Litters in Line.

the Board of the practicability of the changes made. Over two-thirds of the medical officers heard from were in favor of the two-bearer squad and of the attached litter sling.

"The squad has been reduced from four to two bearers because it is believed (1) that more than two men will seldom be available for bearer and first aid work in modern warfare, and that, therefore, the Hospital Corps should be trained, primarily, in working with the unit to which war conditions will at once reduce it. (2) That as a matter of fact the actual bearer work is practically always done by two men, the additional two men of

the present squad being unemployed most of the time. Under the new system just double the number of litters is provided ; in going long distances the squad when necessary can rest, or if the patient is very heavy an additional squad can be assigned to the litter ; (3) that all movements of the drill system are practicable with two bearers, except the passage of a high obstacle, a maneuver which is seldom necessary. In ascending and descending stairs a third bearer is desirable, but whenever there are stairs to be surmounted he is usually available ; (4) that the target area offered is much reduced in size ; (5) that the present drill, which is complicated by having to assign and explain the positions for four men in each movement, is much simplified in the drill with two bearers."

"The litter sling should form part of the litter instead of part of the equipment of the soldier because: (1) the sling is never needed except when the litter is used; in the new system it forms part of the litter, from which it cannot be detached without violence. At present each Hospital Corps man carries a sling, whereas under service conditions the larger proportion of the men, such as those on duty in hospitals and supply depots, as ambulance drivers, &c., are seldom called upon to use the litter. Moreover, when worn as at present, the sling is in the way and liable to be lost when the soldier takes off his blouse or unbuckles his belt, as he often does on the march ; (2) the sling is always needed when the litter is employed, and is only wanted for use at those times. Litter bearing is frequently performed by men from all arms of the service in whose equipment no litter slings are provided."

In any severe engagement Hospital Corps men will be largely employed in first aid work, while the carrying and transporting of the wounded will be turned over to details from the line.

The arrangement of the subjects has been somewhat changed and a few new ones have been added.

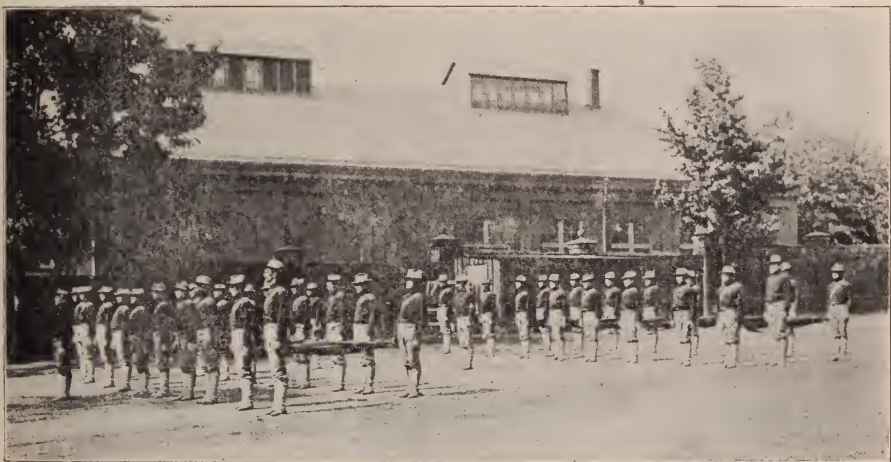
The following paragraph has been inserted at the beginning of the drill : "Par.—The purpose of this drill is to teach the most useful methods of handling the sick and wounded, to secure the concerted action, and for the disciplining effect which

follows drill in prompt obedience to the word of command. When the men have thoroughly mastered it, litter squads should work independently as in actual service."

In general the revision may be said to have resulted in the following changes :

1. Making the regulations conform to the new Infantry Drill Regulations in "definitions," "general principles," and "school of the soldier."

2. Describing in detail the personal equipment of the Hospital Corps, including its packing and manner of carriage.



Detachment in Platoons of Litters.

3. Insertion of the "Manual of the Sabre for Officers."

4. Abolishing marchings and turnings by fours and substituting movements by twos.

5. Reducing the litter squad to two bearers.

6. In the manual of the litter the general rule is followed of making all executions take place at the second command, thus conforming to the manual of arms in the different branches of the line of the Army.

7. Making provision for marching in platoon formation, when necessary, both without and with the litter.

8. Simplification of the methods of loading and carrying the loaded litter and of loading the ambulance. It was aimed to make the commands for these movements suggest the execution.

9. Changing the form of inspection of the detachment. A simpler form has been provided and one appropriate for the single rank formation.

10. Improving the shelter tent drill.

11. Revising and considerably simplifying the methods of pitching hospital, wall, and conical wall tents.

12. Inserting numerous drawings to illustrate the movements described.

THE CHANGES IN DETAIL.

Definitions. Have been slightly modified to agree with the new Infantry Drill Regulations.

General Principles. These have been taken from the new Infantry Drill Regulations, and include all matter given under the heading "Commands," in the old Hospital Corps Drill Regulations.

Signals are unchanged.

The School of the Soldier has been taken from the new Infantry Drill Regulations, and includes "The Position of the Soldier," the "Rests," "Facings," "Salute," "Setting-up Exercises," "Steps" and "Marchings."

Equipment of the Hospital Corps Soldier. New matter has been inserted under this heading, as follows:

Description of the Hospital Corps personal equipment.

The clothing roll; its contents and method of packing.

The articles of horse equipment, and

The method of packing personal equipment on saddle.

The Manual of the Saber for Officers, taken from Cavalry Drill Regulations has been added.

The School of the Detachment. This is based upon the new Infantry Drill Regulations and some important changes have been made. The "marchings" and "turnings" by fours have been omitted and movements by twos have been substituted therefor, a simplification with results as nearly as great as that obtained by reducing the litter squad to two bearers.

Our detachments are usually small and readily admit of marching in column of twos. For detachments having more than twenty privates the division into platoons is permitted and movements by platoons have been added to the regulations. Large detachments of the Hospital Corps are at times required to march in platoon formation in parades, reviews, &c.

Litter Drill. Each set of twos is a litter squad. When acting independently the squad is under No. 2's command.

Manual of the Litter. Throughout this drill no execution occurs at the preparatory command as has heretofore been the



Loading the Litter, First Method.

case. The preparatory command is considered one of preparation only and the execution occurs at the second command, or command of execution. Otherwise the movements remain about the same. "Stack litters" and "Secure slings" have been added, and "Order litter" has been omitted.

Marchings with the Litter. Provision is made to take an interval of four paces between litters in line, and one pace in column. The detachment may be divided into platoons of four litters each and may then be marched by the commands applicable to platoons without litters.

The Loaded Litter. With two bearers the patient must be carried to the litter. This may be done in either of two ways,—by both bearers on one side of the patient, the command being—“1. Right (Left) Side, 2. Posts,” or by one bearer at either hip of the patient, the command being—“1. Hips, 2. Posts.” If a third bearer is available he may support the knees and legs of the patient, or he may get the litter and place it under the up-lifted patient.



Loading the Litter, Second Method.

To direct squads to work independently, the command—“Squad leaders take charge of squads,” has been substituted for that of “Search for wounded.”

A low obstacle is passed by halting and lowering the litter, and then giving the commands—“1. At sides of litter, 2. Posts,” and “1. Prepare to lift, 2. Lift.” The litter is then passed over, the front handles rest on the obstacle while the front bearer goes over the obstacle, and the rear handles rested in the same manner while the rear bearer goes over. The squad being at sides of litter, the litter is then lowered.

Bearer Work with Increased Numbers. “Par.—In exceptional cases, as in ascending and descending stairs, when the patient is very heavy, the ground difficult, or when an obstacle over three feet high has to be surmounted, it may be necessary to use additional bearers. When three bearers are available the third bearer gives aid where most needed; in loading and unloading he usually places the litter under the patient or removes it, or he may assist in supporting a fractured limb. In litter bearing he acts as

a relay or assists in supporting either end of the litter as directed."

To surmount a high obstacle the litter is lifted by four, raised and passed over; to carry it up and down stairs no separate commands are used other than those used to lift and march with four bearers.

Improvisation of Litters. But one method of preparing blanket litter is demonstrated. The rest of the section remains practically unchanged.

Methods of Removing the Wounded without Litters. For one bearer three methods are described—in arms, across back, and astride of back. For two bearers, besides those for carrying patient to the litter, the method of carrying by the extremities is the only one given, the commands being—"1. Head and feet, 2. Posts"; "1. Prepare to lift, 2. Lift."



Loading Ambulance.

To Place Patient on Horseback. This method has been considerably simplified and improved, in the opinion of the Board.

As the *travois* is part of the field equipment of the Medical Department, a description of it, the manner of assembling and taking apart, and its use has been inserted.

The Ambulance. The new pattern ambulance and its equipment are described. An ambulance orderly is provided, who

rides on the seat with the driver. In loading and unloading he opens and closes the tailgate, raises and lowers the curtain, etc.

The litter having been brought to the rear of the ambulance, is halted and lowered. *To load*, the commands are—"1. At sides of litter, 2. Posts. 1. Lower (Upper) berth, prepare to load, 2. Load." The litter is lifted and pushed into the ambulance by the bearers, who grasp their respective poles with both hands. If the upper berth is to be loaded, the litter is then lifted from the floor of the ambulance and the handles are slipped into the sockets and straps. *To unload*, these movements are reversed.

To Prepare and Load Ordinary Wagons to Transport Wounded. No change has been made here.

Inspection and Muster. Important changes have been made under this heading. Instead of the commands—"1. Open ranks, 2. March, 3. Front," there have been substituted—"1. Prepare for inspection, 2. March, 3. Front." The execution consists in the passing of the junior officers from the rear rank to the front of the line as heretofore, and the dressing of the rank.

Provision has been made for the inspection of clothing rolls.

The inspection of litters and ambulances has not been changed.

Tent Drill has been carefully revised and considerable simplification has resulted.

A Scheme for Pitching the Field Hospital has been inserted, with a diagram, and a description of a method of laying out the camp.

A new set of drawings illustrating the regulations has been prepared.

The regulations have been approved by the Surgeon General and the General Staff and their publication will probably immediately follow the final approval of the revised regulations for the Infantry.

Outlines of First Aid. Some minor changes have been made in the outlines, which it is believed will make them more complete. A description of the aid stations established by the Medical Department during an action is given.

TYPHOID FEVER IN THE TROPICS.

By THOMAS C. BIDDLE, M. D.

LATE CAPTAIN AND ASSISTANT SURGEON IN THE KANSAS
VOLUNTEER INFANTRY.

SURGEONS who may have been on duty at Camp Thomas during the summer of 1898, will recall the unusual manifestations of the typhoid fever epidemic at Chickamauga Park. Many of the cases there were atypical; they were nearly all complicated by the almost universal camp diarrhoea that prevailed. There was certainly a strong malarial influence operating that altered the characteristic history of many cases. The idea of malaria, however, so biased the judgment of the medical officers on duty, that they were slow in recognizing the real character of the epidemic. It was not until the disease had continued for several weeks, that it was generally accepted that nearly all the cases of continued fever at Chickamauga were typhoid, and not malaria.

My purpose in referring to the epidemic of typhoid fever at Camp Thomas, is to develop the thought that camp life, and its influences, even in our southern states, so change the clinical history of typhoid fever, that the diagnosis is often confusing to the inexperienced in such service.

This fact accepted, we may conclude that the influences of a tropical climate are much more potential in changing the usual course of the disease.

Of typhoid fever in the tropics, Dr. Manson writes, "The existence of typhoid fever in the tropics was for long not only ignored, but actually denied even by physicians and pathologists of repute".

"Formerly, the idea of malaria so dominated all views of tropical fevers, that nearly every case of pyrexia, other than associated with the exanthemata or with manifest inflammation was relegated to this cause. When ulceration of the ileum was encoun-

tered in the post mortem room, the intestinal lesion was regarded not as the specific lesion of the fever, but merely as a complication. More correct views prevail at the present day, and typhoid now ranks, not only as a common disease in the tropics, but, to the European there, as one of the most commonly fatal." To what extent the natives are subject to the disease is somewhat problematical. It seems to be true that they are not so commonly affected as are persons there from northern latitudes. Acclimatization or habituation appears to have an immunizing influence among the natives.

My personal experience with tropical typhoid fever was in the campaign in Porto Rico. The troops engaged in the expedition were nearly all taken from Chickamauga Park, leaving that camp about the time the typhoid epidemic had reached its most active period. Not sufficient care was exercised in inspecting the health of the commands before embarking. The troops were anxious for an opportunity to see active service, and many were sufficiently stimulated by the excitement of the movement to enable them to conceal the initial symptoms of the fevers that were already in operation. As a result of these conditions, many soldiers were sick with the disease when the troops were landed on the island. My assignment was with the Reserve Hospital, 1st Army Corps, which was the field hospital for Haines' brigade.

Upon landing at Arroyo, about 150 sick men were found scattered throughout the town, the brigade having landed a few days previously. The cases were nearly all fever cases, and presented the general characteristics of the Camp Thomas fever.

One new and peculiar symptom was observed. It was a peculiar subcutaneous extravasation of blood. These discolorations were observed more frequently upon the exposed surfaces of the body, the face, neck and extremities. This unusual manifestation was quite puzzling at first. We found the cause of it to be the bites of the vicious tropical mosquito, and the vitiated condition of the blood.

Within a few days after landing, our hospital was removed to Guayama, where we remained from August 12, to October 23, 1898. The sick reports increased rapidly. The camps appeared

to become completely infected with typhoid toxine; at times, 30 to 40 per cent of the troops were reported sick. The cases were nearly all types of continued fever.

The medical officers held different opinions as to the diagnosis. The popular belief that all fevers in the tropics were malarial, biased the judgment of the surgeons. Intelligent and educated native physicians were most positive in their statements that typhoid fever was unknown on the island, and that the cases were malarial. Instruments to inspect the blood for malarial plasmodium were not available, and had they been, it would probably have only added uncertainty and doubt, because malaria doubtless complicated many of the cases.

As time passed, the true character of the disease revealed itself more clearly; intestinal perforations, with resulting peritonitis and death occurred. Post mortems revealed intestinal ulceration in a most exaggerated form; the extent of the ulceration in some cases were astonishing.

Of the peculiarities of tropical typhoid, the one that impressed me most strikingly was the presence of hemorrhagic complications. Intestinal hemorrhages were frequent and alarmingly excessive, although if the hemorrhage was not fatal, the fever usually subsided and the cases progressed more favorably after the hemorrhage.

Epistaxis was often severe and difficult to control.

Purpura haemorrhagica appeared, as a complication, in several cases in which there was injection of the conjunctiva, bleeding from the gums and mucous surfaces. Subcutaneous discolorations were frequently present, reminding us of the unpleasant possibility of yellow fever. I recall one case that caused considerable alarm. The man was taken sick in the morning. He grew rapidly worse, and was brought to the hospital in the afternoon. He was comatose, temperature 106 degrees F. the body presenting various discolorations, like contusions. The case ended fatally early in the evening; the discoloration had appeared too early for yellow fever.

I conclude that these hemorrhagic symptoms are due to blood changes, and that they are the most distinctive characteristics of tropical typhoid. The temperature and pulse range was

not especially different from that observed in temperate latitudes.

One or two practical points of interest to the military surgeon, and I close:

I believe the most desirable place to treat tropical typhoid is in a well floored and drained tent.

At Guayama, our field hospital became so overcrowded that it was necessary to establish a hospital in town within buildings. I have not comparative statistics of the results of treatment in the two hospitals, but, I do know, that the ratio of fatalities was much higher in the buildings than in the tents.

Again, I believe fever patients should be allowed to remain where they are located until convalescence is established.

My observation leads me to the conclusion, that the practice of carrying typhoid patients home, during the course of the fever, in hospital ships, is not good practice. I saw more than one patient who was progressing favorably, and whom I expected to recover, transferred to ship and die en route home, or soon after reaching the States, death in these cases probably being the result of the movement.

THE MILITARY BREAD RATION IN DENMARK.

IN *Militærlegen* for January 1904, Dr. Ravn states that the Danish War Office has appointed a commission to investigate the question of the military bread ration and to make recommendations as to its improvement. It is quite probable, he remarks, that the outcome of the investigation will not be a recommendation to increase either the nitrogen or the fat, nor is there any reason to believe that a mixture of rye and wheat will be proposed since the latter is very expensive in Denmark and the men are accustomed to rye bread. There may, however, be a question of using yeast instead of leaven and an attempt will naturally be made to obtain rye of as good a quality as possible. An effort will also doubtless be made to increase the fineness of the flour as there is no doubt of the better quality of bread made from finely ground flour. The writer concludes with a remark that it is impossible to have any idea as to the stand the commission may take with regard to the question of bran.—HANS DAAE.

THE UNITED STATES ARMY GENERAL HOSPITAL
AT THE PRESIDIO, OF SAN FRANCISCO,
CALIFORNIA, 1901-1902.

By COLONEL ALFRED C. GIRARD,

ASSISTANT SURGEON GENERAL IN THE UNITED STATES ARMY.

Part 2.

2. MEDICAL WORK OF THE HOSPITAL.

THE medical work of the Hospital has been carried on by Medical Officers, each Officer, as a rule, having charge of two wards, each containing forty patients. Connected with the regular medical work there has been in operation an eye, ear, nose and throat clinic, X-Ray and photographic laboratory, and a pathological and bacteriological laboratory. The special reports of these departments which follow will explain the character and amount of work done in each.

The entire medical service of the Hospital has been under the supervision of a Medical Superintendent.

RULES AND REGULATIONS.

The following rules and regulations have been prepared for the guidance of the Medical Officers in caring for the sick of the Hospital.

CARE OF PATIENTS.

1. Medical Officers will not authorize patients in their wards to receive from visitors, or from any outside source, liquors, wines or eatables of any sort; and in order to prevent the introduction of such articles into the ward, the head nurse will request visitors to leave in her care their satchels, handbags or baskets. In case of refusal to comply with this request the matter will be reported to the Commanding Officer.

2. Hereafter, patients able to sit up out of bed, will wear dressing gowns and slippers at all musters and inspections, except the daily inspections of the Officer of the Day and the inspections of the Ward Surgeons.

Ward Surgeons will be held responsible for the condition of dressing gowns and slippers, making request for repairs or exchange when necessary to the Property Office.

3. At no time must any ward in this hospital be left without at least one nurse and one Hospital Corps man. Wardmasters and the Chief Nurse are charged with the execution of this order.

4. Private soldiers in all wards will not be given passes unless they perform their share of light fatigue duty, except by authority of the Commanding Officer.

5. Each Ward Surgeon will send in daily, with his Morning Report, a list of patients who are able to work around the hospital, classifying them as follows: Those able to do light duty, and those able to do very light duty.

Water and weeding details will be selected by the Ward Surgeon from these lists the evening before going on, and they will report to the Non-Commissioned Officer in charge of fatigue, the water detail at 7:30 a. m., with privilege of 24-hour pass,—the weeding detail at 9 a.m. to work until 11:30 a.m.

HYGIENE OF PATIENTS.

1. Ward Officers will direct attention to the personal cleanliness of their patients and will arrange that every convalescent shall bathe at least once a week.

2. Ward Officers will make a personal examination of each patient on admission and at least once a week, for body lice or other insects. In case any lice are found, it is not sufficient to give perfunctory orders to some nurse or hospital corps man to attend to the destruction of the insects, but the Medical Officer should satisfy himself by personal inspection that the treatment was successful.

The bed of a patient infected with lice with all its contents, must be taken to the laundry room under the ward,—the bed washed with bichloride solution,—mattress, pillows and blankets set aside until the steam disinfection apparatus is ready and then submitted to steam,—the linen put in bichloride solution and then hung up to dry.

The inspection will be made every Monday morning and report will be made in writing that the inspection was made and its result—the latter to enable the Commanding Officer to ascertain if his instructions have been complied with.

CARE OF PATIENTS' VALUABLES.

1. Medical Officers will not accept the personal custody of money from patients.

This instruction is given for the protection of medical officers against possible claims. Money deposited in the Hospital safe is entered on the official records and its return is also made a part of the official record, and in this manner only can an officer be protected against claims possibly trumped up hereafter.

Such claims affect not only the individual officer, but the service as well

TRANSFER OF PATIENTS.

1. Ward officers will transfer from time to time, without further instructions from this office, such of their patients as are on full diet, and are not

in need of special medical or surgical treatment, to the Auxiliary Hospital.

2. When men are transferred from one ward to another within three days of their arrival, the histories, if not completed by the transferring officer, will be written by the receiving officer.

3. Hereafter, in making transfers of patients from one ward to another, care must be taken to see that the *ward* to which the transfer is made appears on the slip. When the transfer is from a ward in this building to a ward in the Auxiliary Hospital, a hospital corps man must accompany the patient transferred and present the transfer slip to the Steward in charge, who will enter the number or letter of the ward to which the patient is to be assigned. The transfer card will then be taken back to the ward *from* which the transfer was made so that the proper notation may be made in the Ward Book, after which the card will be turned in *promptly* to the Officer of the Day. This is necessary in order that the Morning Report may be complete.

4. Ward Surgeons are directed to turn in charts and Disposition Slips promptly on same day patients are discharged from the Hospital.

5. When the status of a soldier changes from "Enlisted Man" to "Discharged Soldier" as is the case when a Volunteer Regiment is mustered out, the Officer of the Day's Office should be notified the same day the change in status takes place.

FURLOUGHS.

1. Applications for furloughs for enlisted men will not be presented by Ward Officers for action by the Commanding Officer in cases where the applicant is able to do duty in the tropics or in the United States, or where the disability is permanent or in cases where the soldier is unable to pay expenses while on furlough. In other cases, the Ward Officer will note on the blank provided the diagnosis and the time during which the applicant will probably be incapacitated for service of any kind.

2. When an enlisted man in hospital is granted a furlough, he will be reported by name on the Morning Report of the Ward he leaves on the day following his departure, and will be carried numerically in the proper space in all subsequent reports until he returns or is ordered dropped. He will be carried daily on the Ward Register, while on furlough as "On Furlough till" (enter date). His bed may be filled or not, as the needs of the hospital may require. When he returns from his furlough he will be taken up in proper space (returned from furlough). If the furlough is for a period exceeding ten days his clinical record will be sent to the Officer of the Day on his departure. Upon his return the Ward Officer will apply to the Executive Officer for his record.

GENERAL INSTRUCTIONS

1. Ward Officers and the Officer of the Day will, in their daily inspections, pay particular attention to the condition of the closets and sinks in the wards; any condition which suggests stoppage or faulty flushing of the soil pipes will be immediately reported to this Office.

2. Ward Officers and Wardmasters are directed to instruct personally each patient that no reading matter of any kind, newspapers or periodicals or food or fruit of any kind whatsoever, will be taken into water closets by patients or others.

3. In addition to a close supervision of water closets, Ward Officers will direct that no refuse or foreign matter of any kind that is likely to obstruct the pipe be put into the sink in the tea kitchens. Plates from the wards should be thoroughly scraped before being put into the sink, and the refuse placed in cans provided for the purpose.

4. The use of towels, pillow cases and other linen for cleaning purposes is strictly prohibited. Cleaning material will be obtained from the Property Officer.

5. Whenever towels, sheets or other linen become soiled by fecal or other matter known or suspected to be infectious, these articles will be soaked in 1 to 1000 bichloride solution and afterwards dried in the ward laundry before being sent to the wash.

6. The spit cups used in cases of tuberculosis should be kept half filled with a saturated solution of permanganate of potassium.

CLINICAL RESEARCH.

1. Ward Officers will exercise especial care that the form for clinical records be complete before sending it to the office for file. When a patient leaves the hospital, there should be a clear and concise history of the case, giving dates as nearly correct as can be obtained, such, for example, as the date of the arrival in the Philippine Islands, of any attack of illness after arrival, with its duration, the date of onset of the present attack, that of departure for the United States, etc.

2. After admission to this Hospital, notes will be entered on the sheet headed "Progress of the Case" at sufficiently short intervals of time, from a day to a week, according to the case, to give at any point in the course of the disease a comprehensive exposition of the condition present.

3. When a man is transferred from one ward to another, the Ward Officer making the transfer will make a note in the "Progress of the Case", "Transferred from Ward . . . to Ward" and append his signature.

4. When a man ceases to be an inmate of the hospital the Ward Officer will see that the date and manner of disposition and the condition of the patient at this time are entered on the form for clinical history and that the form is signed; only the signature of the officer last in charge should be found on the sheet, that of others who may have attended the case appearing under a note of transfer. These entries on the "Progress of the Case" sheet will be made by the Ward Officer personally.

5. Hereafter, when a patient is transferred from one ward to another, it will be noted on the chart, on the next line beneath the diagnosis, whether or not the Diagnosis Card has been sent to the Record Office.

The attention of the Medical Officers of this Hospital is called to the

delay in preparing clinical histories of Cases which have come to autopsy, to be transmitted to the Surgeon General with the autopsy records.

7. Hereafter, such clinical histories will, be prepared and handed to the Executive Officer before the autopsy is performed.

8. The clinical diagnosis of the case, in full, will be sent to the morgue on the card which accompanies the body.

MISCELLANEOUS

In cases of suspected tuberculosis, in which, even after repeated examinations of sputa, no tubercle bacilli are demonstrated, the Ward Officer should recommend transfer to Fort Bayard, provided the physical signs are sufficient to warrant the diagnosis.

When a patient dies in this Hospital, the Ward Officer will personally, at the earliest possible moment, secure all his effects: he will make an inventory of them and will himself deliver them into the possession of the Commanding Officer, or such person designated to receive them.

The Officer of the Day will take the utmost precautions that cases of infectious diseases, especially small pox, be not admitted to the general wards. In case of small pox, the Post Surgeon of the Presidio should be notified, and the patient held in the room to be assigned for that purpose. Cases of measles, mumps, scarlet fever, diphtheria, will be sent, to the Isolation rooms in Ward "F", when completed, until then, to the "Barracks."

The total number of patients admitted to the Hospital during the year has been 4551, divided as follows:

Regulars	4508
Volunteers	15
Others	28

The final disposition of these patients, as well as those left upon sick report at the close of the fiscal year ending June 30, 1901, has been as follows:

DISPOSITION.	REGU- LARS.	VOLUN- TEERS.	DIS. SOLDIERS & CIVILIANS.	TOTAL.
Duty.....	2277	26		2303
Died.....	79	2	19	100
S. C. D.....	403	2		405
Deserted.....	47	1		48
Expiration of Service....	369			369
To other Hospitals.....	378			378
Discharged by Order....	8			8
Insane.....	114	6	5	125
Mustered Out.....		50		50
Left Hospital.....			524	524
Otherwise.....	24		2	26
	3699	87	550	4336

There were 402 patients remaining on sick report on June 30, 1902.

The number of patients received from Transports during the year has been as follows:

TRANSPORT.	DATE OF ARRIVAL.	REGU- LARS.	VOLUN- TEERS.	TOTAL.
Meade	July 28, 1901	415		415
Sumner	Aug. 12, 1901	169		169
Sheridan	Aug. 18, 1901	35		35
Hancock	Aug. 28, 1901	33		33
Grant	Sept. 18, 1901	232		232
Thomas	Oct. 2, 1901	44		44
Kilpatrick	Oct. 12, 1901	29		29
Meade	Oct. 28, 1901	13		13
Hancock	Dec. 4, 1901	299	1	300
Sheridan	Dec. 7, 1901	16		16
Thomas	Dec. 18, 1901	130		130
Kilpatrick	Jan. 9, 1902	2		2
Warren	Jan. 10, 1902	5		5
Grant	Jan. 21, 1902	129		129
Meade	Feb. 17, 1902	134	2	136
Hancock	Feb. 26, 1902	118		118
Sheridan	Mar. 13, 1902	147		147
Egbert	Mar. 28, 1902	4		4
Kilpatrick	Mar. 31, 1902	91		91
Crook	Apr. 2, 1902	7		7
Thomas	Apr. 16, 1902	80		80
Grant	Apr. 27, 1902	68		68
Buford	May 23, 1902	12		12
Sherman	Jun. 22, 1902	181		181
		2393	3	2396

During the year there have been 100 deaths, divided as follows:

Regulars	79
Volunteers	2
Discharged Soldiers	12
Retired Soldiers	2
Civilians	1
Retired Officers	2
Officers	1
U.S. Transport Captains	1

During the year 147 patients were transferred to the U. S. General Hospital at Fort Bayard, N. M., for treatment for pulmonary tuberculosis. These patients were divided as follows:

Regulars	....	145,
Civilians	.....	2.

81 patients have been transferred to the Army & Navy General Hospital at Hot Springs, Ark., divided as follows:

Regulars	.....	81,
Volunteers	.....	0.

NOSOLOGICAL INDEX OF DISEASES

TREATED AT THE U.S.A. GENERAL HOSPITAL, PRESIDIO, S.F., CAL.,
FROM JULY 1ST, 1899, TO JULY 1ST, 1902.

The following nosological index has been prepared from a similar index kept in the Record Office of the Hospital, and will be of use as showing the number and character of the cases treated in this Hospital. The index kept in the Record Office has proven of the utmost value in studying cases of disease, as by its use it is possible to pick out from over 18,000 histories those relating to a certain disease, thus making it possible to select, in a few moments, from among these cases any particular disease which it is desired to investigate. The index as kept in the Record Office gives the name of the disease, together with the Hospital number of each patient suffering from that disease. It is believed that the index given below is very nearly correct. There are some cases which have not been included because of their indefinite character, but under the headings as given in the index, every case which has been catalogued is included. The index is arranged according to the nomenclature of diseases as given in the Army Medical Manual:

I. INFECTIOUS DISEASES, GENERAL AND LOCAL.

DISEASES.	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL, FROM JULY 1, 1899 TO JULY 1, 1902
Scarlet fever.....	1	2	3
Measles	251	216	467
Variola	4	26	30
Vaccinia	4	76	80
Varicella	0	1	1
Influenza	8	23	31
Malarial fever, Pernic- ious	0	3	3
Malarial cachexia	75	244	319
Fever of undetermin- ed causation.....	8	0	8
Erysipelas	5	8	13
Septicemia	2	2	4
Rheumatic fever	0	24	24
Mumps	29	91	120
Diphtheria	0	20	20
Typhoid fever	33	207	240
Cerebro-spinal menin- gitis	3	2	5
Malarial fever, inter- mittent	76	643	719
Malarial fever, remit- tent or continued...	48	143	191
Tuberculosis of the Lungs	157	223	380
Tuberculosis of other Organs	8	7	15
Carcinoma	2	9	11
Sarcoma	3	1	4
Syphilis	57	117	174
Gonorrhea	98	141	239
Gonorrheal epididymi- tis & Orchitis.....	32	94	126
Chancroid & results..	31	251	282
Other diseases of this class	6	41	47
Total	941	2615	3556

II. DISEASES OF NUTRITION, GENERAL.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL, FROM JULY 1, 1899 TO JULY 1, 1902
Scurvy	2	0	2
Anemia	12	53	65
Leucocythemia	1	0	1
Glycosuria	0	1	1
Gout	1	0	1
Other diseases of this class	1	0	1
Total	17	54	71

III. STRUCTURAL AND FUNCTIONAL DISEASES.

a. Diseases of the Nervous System.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL, FROM JULY 1, 1899 TO JULY 1, 1902
Alcoholism, acute....	2	24	26
Alcoholism, chronic..	2	16	18
Delirium tremens....	0	5	5
Chorea	1	4	5
Epilepsy	16	36	52
Insanity	132	215	347
Locomotor ataxia....	2	2	4
Meningitis	2	5	7
Myelitis	3	5	8
Narcotic poisoning, Chron. or drug habit	7	0	7
Neuritis	13	18	31
Neuralgia	5	18	23
Neurasthenia	19	23	42
Nostalgia	0	3	3
Paralysis	19	56	75
Other diseases of this class	2	19	21
Total	225	449	674

b. Diseases of the Digestive System.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL, FROM JULY 1, 1899 TO JULY 1, 1902
Corrosive & Irritant Poisons, Effects of.	0	1	1
Diseases of the Teeth, Gums & Alveoli ...	20	0	20
Diseases of the Mouth and Tongue	1	0	1
Tonsillitis	68	128	196
Pharyngitis	5	0	5
Peritonitis, acute	0	4	4
Dyspepsia	10	34	44
Gastritis	63	252	315
Gastric, ulcer & hem- orrhage	1	0	1
Colic	0	4	4
Constipation	15	52	67
Tenia or other intesti- nal parasites	5	9	14
Diarrhea, acute	28	111	139
Diarrhea, chronic	77	336	413
Enteritis	122	190	312
Appendicitis	23	61	84
Dysentery, acute	23	6	29
Dysentery, chronic ..	558	1628	2186
Dysentery, Amebic ..	279	0	279
Hemorrhage, intesti- nal	0	2	2
Fistula in ano	6	33	39
Hemorrhoids	27	128	155
Biliary colic and cal- culi	2	2	4
Jaundice, catarrhal...	4	11	15
Hepatitis	3	4	7
Hepatic cirrhosis	1	0	1
Other diseases of this class	163	68	231
Total	1504	3064	4568

c. Diseases of the Circulatory System.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL FROM JULY 1, 1899 TO JULY 1, 1902
Angina Pectoris	3	4	7
Cardiac irritability ..	10	11	21
Cardiac degeneration	2	0	2
Pericarditis	0	9	9
Endocarditis	8	16	24
Valvular diseases & re- sults	28	65	93
Thrombosis & Embol- ism	0	1	1
Aneurism	0	5	5
Varicose veins	7	20	27
Phlebitis	1	9	10
Other diseases of this class	23	13	36
Total	82	153	235

d. Diseases of the Respiratory Organs.

DISEASES.	FROM JULY 1, 1901 TO JULY 1, 1902.	FROM JULY 1, 1899 TO JULY 1, 1901.	TOTAL. FROM JULY 1, 1899 TO JULY 1, 1902.
Larynx, Diseases of..	7	25	32
Coryza	12	26	38
Bronchitis, acute	43	159	202
Bronchitis, chronic ..	34	97	131
Bronchitis, capillary .	0	1	1
Emphysema	2	0	2
Asthma	16	35	51
Pulmonary hemorrhage	2	1	3
Pneumonia, catarrhal	23	15	38
Pneumonia, croupous	8	120	128
Pleurisy	22	78	100
Other diseases of this class	9	48	57
Total	178	605	783

e. Diseases of the Genito-Urinary System.

DISEASES.	FROM JULY 1, 1901 to JULY 1, 1902.	FROM JULY 1, 1899 to JULY 1, 1901.	TOTAL. FROM JULY 1, 1899 TO JULY 1, 1902
Pyelitis and Pyelonephritis	3	1	4
Nephritis, acute parenchymatous	11	30	41
Nephritis, chronic parenchymatous.....	25	30	55
Cystitis	9	26	35
Enuresis	3	1	4
Hematuria	0	2	2
Prostatitis	0	2	2
Prostatic hypertrophy	1	0	1
Urethral stricture....	7	13	20
Paraphimosis.....	0	4	4
Phimosis.....	2	26	28
Varicocele.....	26	78	104
Hydrocele.....	4	9	13
Other diseases of this class.....	17	41	58
Total	108	263	371

f. Diseases of the Lymphatic System and Ductless Glands.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899, TO JULY 1, 1901	TOTAL. FROM JULY 1, 1899 TO JULY 1, 1902
Adenitis	28	16	44
Lymphangitis.....	2	3	5
Splenic hypertrophy..	2	0	2
Other diseases of this class.....	1	3	4
Total	33	22	55

g. Diseases of the Muscles, Bones and Joints.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL, FROM JULY 1, 1899 TO JULY 1, 1902
Muscular Contraction	1	0	1
Muscular rheumatism and myalgia.....	30	145	175
Whitlow	1	2	3
Osteitis and results. .	1	3	4
Periostitis.....	7	7	14
Arthritis	30	18	48
Arthritis, chronic rheu- matic.....	71	28	99
Rheu'm, gonorrhoeal....	14	0	14
Arthritis, tubercular..	8	0	8
Bunion.....	2	1	3
Synovitis.....	7	19	26
Other diseases of this class.....	43	50	93
Total	215	273	488

h. Diseases of the Integument and Subcutaneous
Connective Tissues.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL, FROM JULY 1, 1899 TO JULY 1, 1902
Corns and warts	0	5	5
Ingrowing nails	7	26	33
Abscess	22	67	89
Furuncle	2	21	23
Carbuncle	4	1	5
Ulcer	10	54	64
Dermatitis, from poi- sons	3	12	15
Erythema	2	0	2
Psoriasis	1	0	1
Herpes	4	6	10
Eczema and pemphi- gus	3	14	17
Impetigo and acne...	0	2	2
Scabies	2	2	4
Other diseases of this class	34	1	35
Total	94	211	305

i. Diseases of Organs of Special Sense.

1. Diseases of the Eye.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL FROM JULY 1, 1899 TO JULY 1, 1902
Lids, diseases of.....	3	5	8
Conjunctivitis, acute	9	24	33
Conjunctivitis, chron- ic	2	5	7
Corneitis	0	2	2
Scleritis	0	4	4
Choroid, diseases of	6	0	6
Iritis	3	12	15
Retinitis	4	9	13
Asthenopia	0	1	1
Cataract	3	4	7
Glaucoma	2	0	2
Other diseases of this class	45	9	54
Total	77	75	152

2. Diseases of the Ear.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1902	TOTAL FROM JULY 1, 1899 TO JULY 1, 1902
Diseases of external ear	1	81	82
Diseases of the tym- panum	0	2	2
Diseases of the mid- dle and internal ear	66	103	169
Deafness	2	6	8
Total	69	192	262

3. Diseases of the Nose.

DISEASES	FROM JULY 1 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1 1901	TOTAL FROM JULY 1, 1899 TO JULY 1, 1902
Nasal catarrh, chronic	3	3	6
Rhinitis	0	7	7
Nasal polypus	2	0	2
Total	5	10	15

IV. ACCIDENTS AND INJURIES.

a. General Injuries.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL FROM JULY 1, 1899 TO JULY 1, 1902
Insolation	0	38	38
Burns and scalds	3	6	9
Exhaustion	0	19	19
Explosion	1	0	1
Total	4	63	67

b. Injuries to Special Parts.

DISEASES	FROM JULY 1, 1901 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1, 1901	TOTAL FROM JULY 1, 1899 TO JULY 1, 1902
Burns and scalds local	I	0	I
Contusions & sprains	II	63	74
Dislocations	2	0	2
Fractures, exclusive of gunshots	44	58	102
Hernia, inguinal	74	140	214
Hernia, others	6	25	31
Orchitis, from injury	2	12	14
Sprains, muscular ...	6	0	6
Wounds, contused	3	15	18
“ incised	13	19	32
“ lacerated	9	26	35
“ punctured ...	4	3	7
“ gunshot	51	510	561
Other local injuries ..	5	8	13
Total	231	879	1110

V. UNCLASSIFIED.

DISEASES	FROM JULY 1, 1899 TO JULY 1, 1902	FROM JULY 1, 1899 TO JULY 1 1902	TOTAL FROM JULY 1, 1899 TO JULY 1, 1902
Malingering	I	0	I
Unknown	28	14	42
Total	29	14	43

Rate of Mortality. Since July 1st, 1901, there have been 81 deaths at this Hospital. The following table giving the cause of death and the number of cases illustrates the rate of mortality in diseases which have been treated at this Hospital:

	NO. CASES ADMITTED	TOTAL NO. DEATHS
Chronic Dysentery, including chronic specific dysentery and amebic dysentery	837	22
Broncho-Pneumonia	28	8
Pulmonary Tuberculosis	157	8
Lobar Pneumonia	8	6
Carcinoma of the various organs	6	4
Abscess of the liver	7	3
Chronic diarrhea	77	3
Chronic interstitial nephritis	25	3
Internal hemorrhage from injury	2	2
Appendicitis	23	2
Purpura hemorrhagica	2	2
Scarcoma	5	2
General peritonitis	2	2
Syphilis	57	2
Empyema	1	1
Miliary tuberculosis	1	1
Pyæmia	1	1
Fibroid Pnenmonia	1	1
Ulcerative endocarditis	1	1
Acute lymphatic leukemia	1	1
Cholecystitis	1	1
Gunshot wounds	51	1
Acute septicemia	4	1
Surgical shock	1	1
Thoracic aneurism	1	1
Ankylostomiasis	8	1

From a consideration of the above table it will be seen that chronic dysentery, (amebic, and the chronic specific form) have caused the greatest number of deaths, but the rate of mortality has been low when compared with the number of cases received. The high rate of mortality in broncho-pneumonia will be discussed under a consideration of the epidemic of measles which occurred at the Presidio. The small rate of mortality which will be noticed in pulmonary tuberculosis is due to the fact that most of the tubercular cases were transferred to Fort Bayard, N. M., only those which were in such a condition to forbid traveling being retained at this Hospital

Chronic Dysentery: There were 837 cases diagnosed as chronic dysentery admitted to the Hospital during the year, of which 279 were due to the ameba of dysentery, the remainder being divided between the ordinary catarrhal form of dysentery and the chronic specific form. Of the amebic cases, nine died; of the chronic specific form, twelve. One case died which showed the characteristic lesions of marked catarrhal dysentery. The small rate of mortality shown in the cases of dysentery admitted to the Hospital during this year is due to two factors: 1st, that the cases admitted were not in as advanced a stage of the disease as those admitted in previous years, as a rule; 2nd, that the experience in treatment of dysentery cases at this Hospital for three years has resulted in a better knowledge of the therapeutics of the disease, and consequently better success in its treatment. In the amebic cases the injection of a strong solution of quinine has been pursued as a routine measure. This treatment has proven most satisfactory, as shown both by the physical condition of the patient after commencement of the treatment and by examination of the stools in the laboratory. The ameba quickly disappeared from the feces, as did also blood and mucus. The patients, gained in flesh, and in the majority of cases rapidly convalesced. Some of these patients, however, after treatment has been discontinued, relapse, and it is again necessary to resume the treatment. Taken all in all, the treatment by quinine injections in amebic cases has proven the most satisfactory that has yet been tried at this Hospital. In the cases which were not amebic various therapeutic procedures have been tried, but in all these cases the element of diet seems to play a more important part in the recovery of the patients than anything else. No routine diet has been found to be satisfactory, each case having to be treated separately. A strict milk diet in some cases rapidly promotes convalescence in the patients, while in others it has been found necessary to give some solid food. A thorough study of the cases of dysentery, aside from those due to ameba, but proves the fact that each case must be judged separately and studied thoroughly. Routine treatment in these cases is unsatisfactory. Injections have been used somewhat extensively. Those containing nitrate of silver have, in 2

few cases, proven very beneficial, but in most cases the severe pain caused by the use of this solution has precluded its employment.

Broncho-Pneumonia. 28 cases of broncho-pneumonia have occurred at this Hospital following measles, of which eighteen died. This excessive rate of mortality is due to the fact that these cases were all complicated by a streptococcus infection, and the patients actually died of a streptococcus septicemia. The following report of the epidemic of measles which occurred at the Presidio has been prepared by the medical officer having these cases in charge.

Measles appeared at the Presidio about the middle of December, 1901, the first case being admitted to this Hospital on the 17th of that month. During the rest of this month eight other cases were received. The epidemic spread with considerable rapidity, seventy cases being admitted in January, seventy-nine in February and 116 in March. During April there was a falling off to 82, and a further decrease in May to 24. By June 1st the epidemic was practically suppressed.

These cases were treated, previous to March 21st, in two large buildings which had served as barracks. Each of these buildings contained one large and two small squad rooms, accommodating thirty-five, twelve and eight beds respectively.

In time these rooms became very much overcrowded, owing to the rapid extension of the epidemic and to the adoption of the rule which required patients to remain under surveillance in hospital until thirty days after the onset of the disease. This rule it was found necessary to make because of the susceptibility of these patients to broncho-pneumonia, especially when subjected, as most of them would be, to the exposure incident to camp life in this climate.

The difficulty of treating the men was also increased by the fact that many of them were recruits who had not yet learned the essentials of personal cleanliness and care of the squad room.

The nursing of patients was acceptably performed by members of the Hospital Corps until February 13, 1902, when it became possible to give the care of the sick into the hands of trained female nurses. There was, thereafter, a marked improvement

noticeable in the care and management of the wards, comfort of the patients and discipline of the men. Under the charge of Hospital Corps men it seemed impossible to prevent these untrained patients from expectorating freely upon the floor, a practice which was followed by a suprisingly large number of lung and ear complications. To show the probability of infection from this source it is interesting to note that no case of broncho-pneumonia, and very few ear complications, arose in those wards which were disinfected and placed under the charge of female nurses.

On March 21st, 1902, the improvised Hospital at the barracks was abandoned, and wards in the General Hospital proper were turned over for the care of the measles patients. Their proximity to the general wards proved not to have been of any moment, as no case developed through conveyance of the contagion.

As shown below, there were eighteen deaths, all occurring among the twenty-eight patients who developed broncho-pneumonia. The fatal cases were characterized by great intensity of symptoms from the onset of the complication, showing a high degree of toxemia, four cases dying in five days, and nine in eight days or less.

In nearly all fatal cases there was more or less pleuritic effusion, which invariably became purulent.

Those cases which went on to recovery never showed very extensive involvement of the lungs, but convalescence was very protracted.

A further study of the twenty-eight cases of pneumonia shows the disease to have supervened as follows: three on the seventh day, five on the eighth, eight on the ninth, and five on the tenth. The earliest case supervened on about the 5th day of measles, and the latest on the 15th. In one case the temperature had been normal for nine days.

In the table which follows, eye complications are not included, for the reason that comparatively few patients considered their eye symptoms of sufficient importance to speak of them during their stay in the measles wards. Consequently the few cases which reported would be of no value in such a table.

Total number of measles treated	381
Total cases pneumonia	28, or 7.3%,
Total deaths	18,
Per cent. of measles cases	4.7,
Per cent of pneumonia cases	64.3,
Total cases suppurative middle ear	46, or 12%,
Total cases suppurative mastoiditis	7.

In the cases which were autopsied sections were taken of the organs, and examinations by the pathologist of these sections all showed enormous numbers of streptococci present in the tissues, especially in the sections of the lung and spleen. Specimens of the sputa stained showed a preponderance of streptococci, there being comparatively few pneumococci present. From the examination of the sections and the sputa the conclusion is unavoidable that these cases became infected with a streptococcus septicemia. Cultures from the sputa and from the diseased organs in a few cases showed a typical streptococcus, and as far as observations have gone this organism did not differ from the ordinary streptococcus pyogenes.

The portions of this report relative to "Abscess of the Liver" and on "Cases of Malignant Disease" have already appeared in the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS, for March 1903 (Vol. xii, page 156) and January 1904 (Vol. xiv page 19).

INCREASE OF THE FRENCH MILITARY MEDICAL CORPS.

GENERAL Andr , Minister of War, has laid before the French Assembly a plan for the enlargement of the Medical Department of the Army. He proposes the following proportions of the various grades:

- 3 Medical Inspector Generals, with the rank of Lieutenant General.
- 11 Medical Inspectors, with the rank of Major General.
- 45 Principal Medical Officers of the first class, with the rank of Colonel.
- 60 Principal Medical Officers of the second class, with the rank of Lieutenant Colonel.
- 340 Medical Officers of the first-class, with the rank of Major.
- 510 Medical Officers of the second class, with the rank of Captain.
- 400 Assistant Medical Officers of the first class, with the rank of Lieutenant.
- 100 Assistant Medical Officers of the second class with the rank of Sub-Lieutenant.

THE MEDICAL DEPARTMENT OF THE JAPANESE ARMY.

COMPILED BY
THE SECOND DIVISION OF THE GENERAL STAFF,
UNITED STATES ARMY.

OFFICERS of the army medical service are recruited principally from students of the medical school or the University, who are required subsequently to undergo a course of instruction at the military medical school.

One-year volunteers, who are licensed to practice medicine or to dispense, and men between the ages of 20 and 30 who have matriculated at the military medical school, may be appointed surgeon probationers and promoted to 3rd class surgeons.

Medical officers are classed as non-combatants, but have a relative military rank, the highest grade being that of lieutenant-general. The hierarchy of the apothecaries extends only up to the relative rank of major.

The uniform is of dark blue cloth with green facings; the cap-bands are green, the braid stripes green, and the lace stripes silver.

In peace time the headquarters medical *personnel* of each division consists of 1 principal surgeon, 2 surgeons, and nine medical subordinates. At the headquarters of each division is a well equipped garrison hospital, and local hospital arrangements are made at out-stations, each hospital being provided with a suitable proportion of medical officers, apothecaries, and medical subordinates.

The Red Cross Society has a central association in Tokio, with a branch in every ken (prefecture). It is a very flourishing institution, its list of subscribers containing nearly 700,000 names.

There are hospitals in all the chief cities, that in Tokio being a specially fine one, and there is a large staff of trained nurses, male and female, who in time of peace are at the service of the general public.

The society possesses two large steamers, the "Mercy" (Hak-uai), and the "Saviour" (Kosai), specially constructed and equipped as floating hospitals, which did excellent work during the operations in China, 1900-1901. In these ships the wounded and the sick find all the comforts furnished by a first-class hospital on shore, and are under the charge of a large staff of highly-trained surgeons and nurses.

ORGANIZATION IN WAR.

In war time, to each mobilized division is attached a medical detachment, consisting of detachment staff, 2 sanitary (or bearer) companies, 6 field hospitals, with due proportion of riding and baggage horses.

In the Chinese campaign, 1900-01 the establishment was as follows:

Field Hospital:

- 1 Chief medical officer.
- 5 medical officers.
- 1 apothecary.
- 9 N.C. officers, medical corps.
- 40 privates, medical corps.
- 1 cutler.
- 5 privates (infantry soldiers).

Transport train:

- 1 senior driver.
- 1 N.C. officer driver.
- 40 men.

The composition of the Bearer Company at Peking was as follows:

- 9 medical officers.
- 1 apothecary officer.
- 1 pay officer.
- 14 N.C. officers.
- 1 pay N.C. officer.
- 26 trained men, hospital corps.

A company can nurse 100 sick, but a single company does not carry a complete set of stores, the organization for war being 2 companies, with a complete equipment for 200 sick.

Reserve Hospitals are established either in or out of military garrisons, for the reception of patients sent back from the field,

as well as for those from regiments of the reserve and from the garrison.

The establishment of a reserve hospital comprises:

- 1 surgeon-colonel, surgeon-lieutenant-colonel, or surgeon-major, as chief.
- 2 or 3 medical officers.
- 1 to 4 pharmacutists (officer).
- 1 commissariat officer.
- 3 to 5 chief attendants.
- 1 to 6 pharmacutists (N.C. officers).
- 2 to 8 commissariat N.C. officers or men.
- 30 to 40 attendants.
- 1 to 2 mechanics.

(a). If a sufficient number of medical and pharmaceutical officers be not available, their places may be filled by temporary civil medical practitioners and pharmacutists.

(b). Deficiencies in attendants and pharmacutists are to be made up by the 1st or 2nd class reserve attendants (N.C. officer), or by temporary hired employes.

(c). The duties of all, excepting those of hospital chief, commissariat officer, and under officer, may be taken by members of benevolent societies.

(d). For every increase of 40 patients over 120, 1 medical officer, 1 chief attendant, and 10 to 13 attendants may be added.

(e). The chief of the hospital is subject to the commander of the territorial division.

Auxiliary Hospitals may be established when required.

Medical Service on Line of Communications.—The medical staff of the line of communications consists of:

- 1 surgeon-lieutenant-colonel or surgeon-major, as chief.
- 1 surgeon-captain or surgeon-lieutenant.
- 1 pharmacist (only where there is no reserve medical stores).
- 1 N.C. officer.

Reserve Medical Personnel.—To each Division is attached medical *personnel*, organized at the time of mobilization, its duty being to serve in the stationary field hospitals.

Reserve medical *personnel* is named after the division to which it belongs. The establishment is as follows:

- 1 surgeon-major as chief.
- 2 surgeon-captains.
- 4 surgeon-lieutenants, 1st or 2nd.
- 1 pharmacist (officer).
- 1 commissariat officer.
- 14 chief attendants (N.C. officers).
- 40 attendants (N.C. officers).
- 3 pharmacists (N.C. officers).
- 9 servants.

The medical officers are, as far as possible, to be taken from the active list, and in case of deficiency in that, from the first or second class reserves.

Stationary Field Hospitals.—A stationary field hospital is intended to receive patients from the field hospital, the place of which it takes, so that the latter can advance.

It is not to move with the fighting line like a field hospital, but is to receive patients at a fixed place, continuing its work until there is an opportunity of sending them back.

The chief of a stationary field hospital is a surgeon-major or a surgeon-captain, and the strength of the *personnel* varies according to requirements.

Reserve Medical Store.—On mobilization, one reserve medical store is allotted to each Division, and named after the Division to which it belongs. The following is the establishment:

- 1 chief store master (lieutenant of train).
- 2 train N.C. officers.
- 6 train privates (2 shoeing smiths).
- 1 pharmacist (officer).
- 2 pharmacists (N.C. officers).
- 2 mechanics.
- 1 clerk.
- 2 servants.

The reserve medical store is located in a place convenient for the despatch of supplies to hospitals, &c, as a rule at the most advanced stations, or where there is railway or water communication.

If one portion of the army becomes detached, a reserve medical store is attached to it.

Transport of Patients.—On mobilization, a staff to arrange for the transport of patients is organized in each Division. It is named after the Division to which it belongs, and comprises:

- 1 major or captain, as chief.
- 2 medical officers (surgeon-captains or surgeon-lieutenants).
- 1 chief attendant (N.C. officer).
- 2 attendants (N.C. officers).
- 1 clerk (N.C. officer).
- 3 orderlies.
- 3 servants.

As a rule, the transport staff is located at the most advanced station of the line of communications, or where there is either railway, ship, or other convenient means of transport, the existence of houses, etc. for the reception of patients being taken into consideration. On the advance of the fighting line the transport also advances.

Field Hospitals.—The function of the field hospital is to receive the wounded from the dressing stations, or directly from the fighting line, and to transport them to the rear, gradually relieving the dressing stations, so as to enable the bearer company commander to advance or retire without hindrance.

Field hospitals are called by the names of their Divisions, counting from No. 1 to No. 6 in each division. The *personnel* and equipment of each are so organized as to be divisible into two equal parts.

A field hospital should be as near as possible to the dressing station, easily seen, sheltered from the enemy's fire, and convenient for the transport of wounded.

Dressing Stations.—The dressing station is established near the fighting line, in such place as can be easily found by the soldiers, is out of the enemy's fire, convenient for the transport of the wounded, and when possible in the vicinity of good water, and in the hot weather in the shade.

Its function is to receive wounded men from the fighting line, and to permit of their being medically treated before transfer to the field hospital.

Hospital Ships and Transports.—These are used when suitable water communication is available.

Medical organization of the different Arms of the Service.—The establishment of medical *personnel* with units is as follows:

Infantry Regiment:

- 2 surgeon-captains (one officer may be a surgeon-lieutenant-colonel or a surgeon-major).
- 4 surgeon-lieutenants.
- 3 chief attendants.
- 12 ordinary attendants.
- 48 reserve bearers (trained soldiers belonging to the regiment).

Cavalry Battalion:

- 1 surgeon-captain (or surgeon-major).
- 1 surgeon-lieutenant.
- 1 chief attendant.
- 1 ordinary attendant.

Battalion of Artillery:

- 1 surgeon-captain (or surgeon-major).
- 2 surgeon-lieutenants.
- 1 chief attendant.
- 2 ordinary attendants.

Battalion of Engineers:

- 1 surgeon-captain (or surgeon-major).
- 1 surgeon-lieutenant.
- 1 chief attendant.
- 2 ordinary attendants.

Battalion of Train:

- 1 surgeon-captain (or surgeon-major).
- 2 surgeon-lieutenants.
- 3 chief attendants.

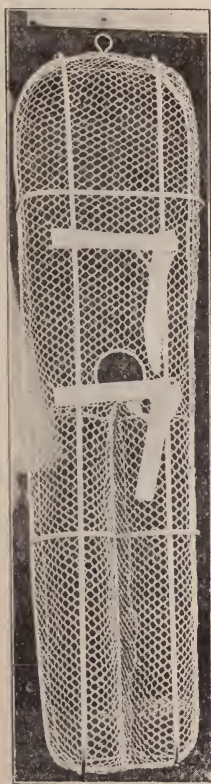
War Establishment of a Mobilized Division.—The medical strength of the war establishment of a mobilized division is shown in the following table:

	NON-COMBATANTS.				ANIMALS.		
	Officers	N.C. O.	Pvts.	Total	Pack.	Riding	Total
Medical sanitary detach- ment.....	13	60	330	403	40	10	50
6 field hospitals.....	42	54	600	696	300	42	342

THE SPLINT STRETCHER.

BY CHARLES F. STOKES, M. D.

SURGEON IN THE UNITED STATES NAVY.



The Splint Stretcher.
Showing the features
of construction.

IN taking up the subject of the transport of disabled persons one is amazed at the enormous energy that has been expended in that direction, and is disappointed at the crudeness of the devices that have been evolved.

The surgical features of this very important step in military surgical treatment, and in civil emergency practice, appear to have been lost sight of. A proper consideration of the cardinal surgical indications from the time the patient is injured in the field or in the street, up to the point where he is lodged in a hospital ward, appears to have been neglected.

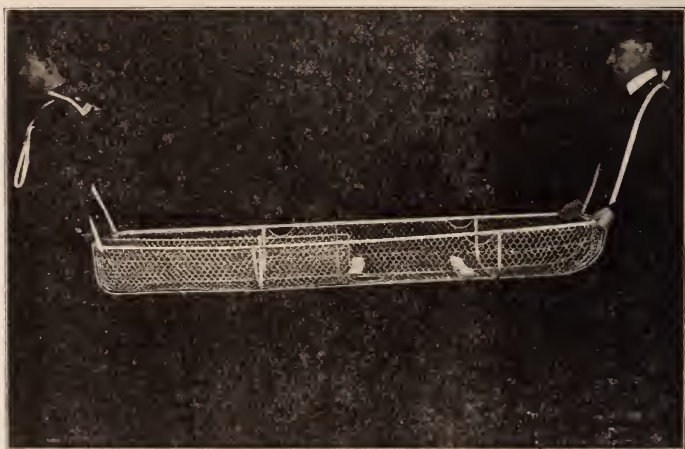
The questions of asepsis and operative interference are not under consideration, and will not therefore be discussed.

What are some of the indications to be met in the transport of wounded or otherwise disabled persons?

1. Comfort and a sense of security.
2. The splinting of the entire body as well as the immobilizing of the injured parts.
3. Transport, with a minimum of direct handling of the head, trunk and extremities, —in other words, the handling of the apparatus and not the direct handling of the patient.

To those unfamiliar with gunshot wounds, shell wounds and the severe injuries sustained in street accidents, the consideration

of the comfort of the disabled and their sense of security may at first thought appear of minor importance. At times, to approach a badly wounded man is to fill him with dread. A glance at the facies of a severely wounded soldier with, say, a compound fracture of the femur, as he is about to be lifted into an ambulance for transport to the rear, or a glance at that of a bluejacket, with the same sort of injury, as he is about to be put over a ship's side for transfer to a hospital ship or shore station, or, again, at that of a laborer, injured high up in an unfinished building, who is about to be removed to the street below by way of perpendicular



The Splint Stretcher in Use as a Litter.

ladders, will impress one not only with the great importance of inspiring confidence under these hazardous conditions, but also of accomplishing the removal in safety. The look of horror, dread and apprehensive helplessness seen in faces under these conditions cannot be disregarded.

Splinting of the body in the transport of the wounded is an indication that appears to have been overlooked, and is one of vital importance. To be sure some types of litters have restraining and securing attachments but none with which the writer is familiar claims to splint the entire body.

Transferring boards have been in use for some time but as far as the writer knows splinting qualities have not been claimed for them, otherwise they would merit condemnation as surgical barbarisms. The buttock pieces are so placed that they throw the upper fragments forward in fractures of the femur, and the foot pieces tend to put the broken bones out of line or crowd their ends together in fractures of the leg. The fact that these devices are constructed of wood and are therefore a source of great danger through splintering is enough to ensure their disappearance from fighting ships.

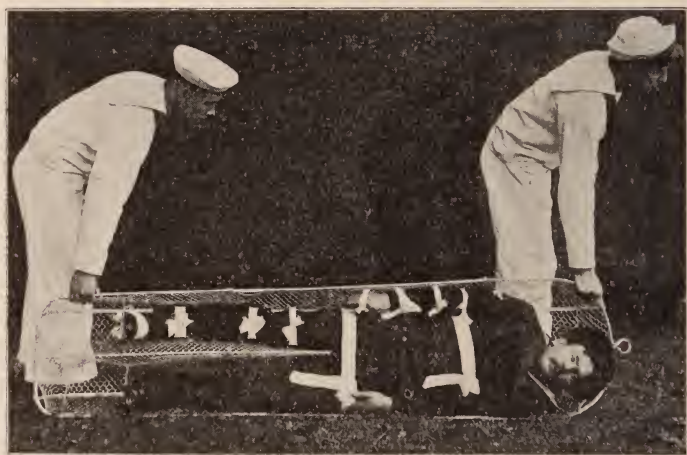


Splint Stretcher bearing a Patient of 200 pounds Weight.

Why is it necessary to splint the entire body? will be asked. Let us see. Is it possible to handle satisfactorily and efficiently severe crushing injuries of the leg, or very oblique fractures of the tibia, or the same types of injuries of the thigh, with the ordinary emergency dressings in place? In the writer's opinion it is not possible. We may put the injured leg up in padded side splints, or in a splinted pillow, but by the time the patient is lifted on to a stretcher the ends of the broken bones have been pretty well rubbed together, or worse damage may have been done. An

injured person who has been placed on the flat surface of an ordinary litter is pretty free to wobble about in transit, and the voluntary and involuntary muscular contractions of his attempts to establish his equilibrium add to the picture of his discomfort and danger.

In the splint stretcher about to be described not only is the entire body protected on three sides but the thorax and pelvis are secured, and the hip, knee, ankle and foot of one or both sides can be immobilized in a few seconds. In this apparatus the patient is impressed with his security and protection, which inspires



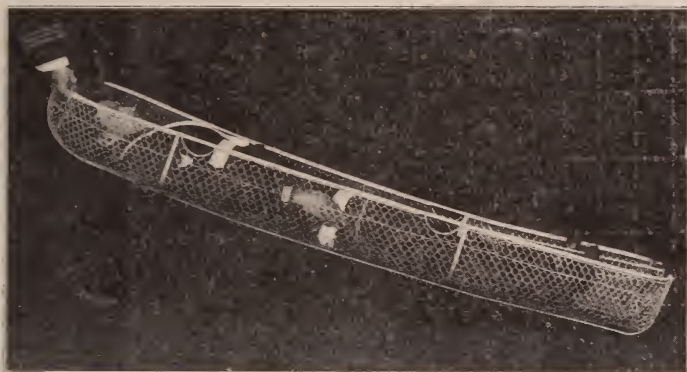
Patient carried on Side as in passing through Narrow Doorways.

him with confidence and adds to his comfort during removal. The splint stretcher, and not the patient, is gripped in the manipulations incident to transport.

As a teacher of military surgery, the writer has given the treatment of gunshot wounds much thought and study, and he has been impressed with the inefficiency of the present methods of treating injuries of the lower extremities incident to war and to the emergencies of civil life, from the time of their infliction up to the point where the patients are placed in hospital wards. Surgeon General Stevenson, professor of military surgery

in the Royal Army Medical School, recommends a type of fracture box for the early immobilization and treatment of gunshot injuries of the ankle-joint and leg in hospitals, and the same type of apparatus is employed in civil hospitals in the early treatment of complicated, simple and compound fractures of that region. Surgeon General Stevenson advises the use of posterior wire gauze splints in the early hospital treatment of certain types of knee-joint and thigh wounds.

In the two leg gutters of the splint stretcher, we have two wire gauze splints, and with the adjustable footpiece two complete fracture boxes as well. Thus in the field, or in the street,



Splint Stretcher in Use as a Sled.

at a first dressing, the indications so carefully looked after in hospitals, afterward, can be efficiently met. With the foot secured to the footpiece inward and outward rotation can be prevented in handling patients with fractures of the femur.

- There are no injuries more difficult to handle at the front than compound fractures of the thigh and with that fact before him the writer planned the splint stretcher.

The mesh of the apparatus is sufficiently pliable to be shaped to the part it contains and is rigid enough for effective splinting. The foot-piece consists of a shoe shaped piece of galvanized steel somewhat wider than the foot with a linear slot on each side for

the passage of the securing bandage. It is secured to the mesh at any point by means of four rigid snap catches, and it can be raised and lowered in the leg gutters at will. When not in use it can be turned flush with the sides of the leg gutters, and snapped into the mesh in that position. It is considered a very important part of the apparatus.

The illustrations show the other characteristics of the splint stretcher so clearly that but a few more words of description will suffice.



Splint Stretcher.
Being slid down a
Ladder.

The device weighs about twenty pounds, is eighty inches long, twenty inches wide at the shoulder, and is eight inches deep throughout. The frame, which is constructed of half inch galvanized steel, consists of a horizontal piece to which alone the wire mesh is attached and which is doubled at the hand openings to give a satisfactory grip. The hand openings at the ends will in future have grips one and a half inches in diameter, and the loops at the head formerly used for attaching a tackle hook in up-ending a patient will be replaced by a small opening in the mesh and a slight undulation in the frame which will serve the same purpose. There are two cross braces and two longitudinal braces which give rigidity to the horizontal piece. The latter, also serve as runners when the splint stretcher is used as a sled. The mesh, which is clear of these braces, is thrown up in a fold between the legs. The openings in the

mesh are so wide that a bandage can be passed through it at any point, so that after the mesh has been shaped to a part it can be fixed there, or an extremity can be secured to it as shown in the illustrations. Two wide bands of canvas, one at the height of the axillae, the other at the point of the hip (shown too low in the photographs) secure the thorax and pelvis respectively. A sanitary opening completes the apparatus.

The splint stretcher has been given a thorough trial on board ship and meets the requirements satisfactorily. It can be used as a stretcher, as a sled, and can be slid down ladders from one deck to another with little or no discomfort to the patient. Supported on a tackle hook it can be up-ended with ease and in that position a patient can be safely put over the side, or be sent below through hatches. When the splint stretcher is in a perpendicular position the patient keeps his perineum away from the perineal fold by putting his weight on the foot-piece on the uninjured side. In case both legs are injured a bandage passed behind the neck over the shoulders and under the arms, and secured to the mesh clears the perineum. To pad the perineal fold would be to encourage its use as a saddle when the fragments of broken bones might be crowded together in cases of fracture.

The splint stretcher was originally devised to meet the requirements of the naval service but in the opinion of the writer it has a wider field. It is adapted to civil hospital ambulance practice, and in cities in which persons injured in the streets are carried to hospitals in police patrol wagons unattended by surgeons, it would minimize the mishaps due to unskilled handling. In removing patients from tenement houses, from the holds of ships, and through narrow passageways, no difficulties would be encountered, for the patient can be up-ended, or carried on side, in comfort and security.

The problem of adapting the splint stretcher to ambulances and hospital trains has been worked out. A set of three splint stretchers placed one above another can be supported by four leather straps. The leather straps are provided with adjustable snaps to support the splint stretchers and are secured to



The Splint Stretcher.
Showing the methods
of splinting a Patient.

the roofs of the cars by spiral springs above and ring bolts below, and will in this way be made to ride easily. The splint stretchers are made so that they can be nested for economy of space in stowing, and they will stand a good deal of rough handling in shipment. They are strong enough to be used for purposes of restraint in treating delirious and maniacal patients. A sample splint stretcher forms part of the exhibit of the Kny-Scheerer Company of New York, at the St. Louis Exposition where it can be seen.

The apparatus has been adopted for use in the United States Navy; the Army will use it in the Transport Service, and will give it a trial in the field in the maneuvers at Manassas in September; it will be used in the hospitals of the Isthmian Canal Commission and several railroad surgeons have taken it up for use in their service.

The writer has aimed at simplicity in constructing this device and has sought to have it a stretcher and a splint in one, thus making the preparation of the patient for transport a procedure of one step instead of two. In this apparatus patients can be treated until they have recovered from shock, or until their injured parts are ready for a permanent dressing.

CASE OF PERNICIOUS MALARIAL FEVER, COMATOSE TYPE. RECOVERY.

BY CAPTAIN FREDERICK HADRA,

LATE ASSISTANT SURGEON OF UNITED STATES VOLUNTEERS
AND CONTRACT SURGEON, UNITED STATES ARMY.

THE clinical history of a case of Pernicious Malarial Fever admitted to the Field Hospital at Bangued Abra, Luzon, P. I. in 1900 is of interest chiefly on account of the large amount of quinine sulphate tolerated by the patient, without evincing the slightest degree of cinchonism and his subsequent freedom from malaria, though continuing on duty for many months at the same station.

The history, somewhat abbreviated from my daily notes, with a thermograph, is as follows:

John R. C.—Q. M. Sgt. Co. "D" 33rd Infantry. Native Arkansas. Age 28 $\frac{8}{12}$.

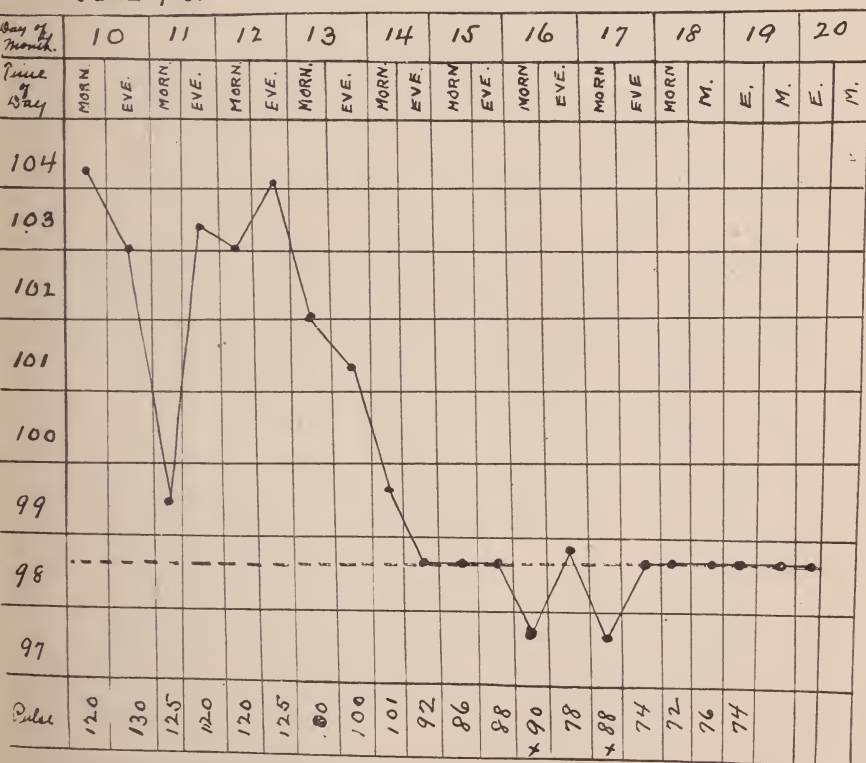
Admitted July 10, 1900, 10 A. M.

Diagnosis, Pernicious Malarial Fever, etc.

Family History—Good.

Previous History—Excellent. Had been ill with slight attacks of "chills and fever" for about 4 days previous to present

JUNE 1900.



Temperature Chart. Case of Pernicious Malarial Fever. Comatose Type.

attack, continuing on duty. Arose about 6 A.M. June 10th and performed his duties as usual, when about 10 A.M., he suddenly dropped unconscious.

Present Condition—Complete unconsciousness. Temperature, axilla, 104.2. Pulse 120. Respiration, stertorous.

Examination of Urine—Negative.

Bacteriological and Microscopical examination had to be omitted because theoretically my Hospital of 30 beds in a garrison of 500 was a Field Hospital and hence not entitled to these diagnostic aids.

Clinical Peculiarities:

1st day—Complete unconsciousness.

2nd day—Comatose; pulse rapid and thready; respiration stertorous.

3rd day—Comatose; pulse and respiration similar to above.

4th day—Consciousness regained; pulse, temperature and respiration improved.

5th day—Temperature normal—convalescence rapid.

11th day—Returned to duty.

Treatment.—Solution of Quinine Sulphate, by mouth, 20 grains (1.30 gm.) every 6 hours, for 48 hours, then 10 grains (0.648 gm.) every 6 hours for the next 48 hours; or a total of 240 grains (15.4 gm.) in 4 days. Calomel 10 grains (0.648 gm.) in one powder, and Strychnine Sulphate gr $\frac{1}{30}$ (0.002 gm.) every 4 hours hypodermically, were also given.

The entire absence of cinchonism, the rapid convalescence and the freedom from subsequent attacks are noteworthy. I doubt whether the patient could have been saved by hypodermic injections of quinine; because I lost a similar case in Cuba the year before using this method. I will also add that 15 grains (1.00 gm.) of quinine are usually sufficient to cure all intermittent tertian forms and that I do not remember ever having given more than 30 grains of quinine, per diem, before for ordinary remittent types. It is evident however that desperate cases demand heroic dosage.

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BRIGADIER GENERAL WILLIAM ALEXANDER HAMMOND.
SURGEON GENERAL, U. S. ARMY, 1862-1864.

Editorial Department.

The Surgeon Generals of the United States Army

XI. BRIGADIER GENERAL WILLIAM ALEXANDER
HAMMOND, SURGEON GENERAL OF THE
UNITED STATES ARMY, 1862-1864.

PROBABLY a greater emergency has never confronted medico-military science than that of 1862. The development of the greatest conflict of the ages had brought forth for solution numerous problems of a magnitude and importance beyond the dreams of previous experience. For months, at the most trying period of the struggle the medical department had been without the services of a lawfully constituted head. At this juncture the Sanitary Commission, organized by civilians for the assistance of the army medical department, took a hand in affairs and after careful consideration of the claims of all the medical officers then in the service, determined to recommend for appointment as Surgeon General, Lieutenant William Alexander Hammond. Although so low in rank at the time of his appointment, Dr. Hammond was by no means young in service or without ample military experience for besides the one year of service under his then commission, he had previously had eleven years of varied duty under a previous commission, which he had resigned only two years before.

General Hammond was the son of Dr. John W. Hammond of Anne Arundel County, Maryland, and was born at Annapolis, August 28, 1828. When he was about four years old his father moved to Pennsylvania, and he received his early education at Harrisburg. He began the study of medicine at sixteen, and attended lectures at the Medical Department of the University of the City of New York from which he was graduated with the degree of M.D. in 1848. After supplementing his college course

by a year's work at the Pennsylvania Hospital, he appeared before the army medical examining board, and was successful in obtaining an appointment as assistant surgeon, June 29, 1849. A few days later he proceeded across the plains with a body of troops to New Mexico, where he remained for nearly three years, serving during that period at nine different posts and passing a large portion of the time in active field operations against the Indians. After a much needed sick-leave spent in Europe, where he did not fail to avail himself of the opportunities also afforded for professional study and observation, he took station at West Point, and later at Fort Meade, Florida and Fort Riley, Kansas. While on duty at Fort Riley he served as medical director of an important expedition against the Sioux and as medical officer of the forces which located the road from Fort Riley to Bridger's Pass in the Rocky Mountains. He then returned eastward to Fort Mackinac, Michigan.

During this period of service he devoted his leisure hours particularly to physiology and physiological chemistry, and in 1857 was awarded the American Medical Association Prize for an exhaustive essay on "The Nutritive Value and Physiological Effects of Albumen, Starch and Gum when singly and exclusively used as Foods." He produced numerous other papers along these lines, some of which were very extensively circulated and translated into the French and German. The reputation thus gained secured for him an invitation to the chair of Anatomy and Physiology in the University of Maryland and on October 31, 1860, he resigned in order to accept that position.

Here marked success greeted his efforts; a most facile and forcible speaker, his mastery of his subject rendered his lectures popular and profitable in the extreme, while his exceptional professional qualifications soon secured for him an enviable position in Baltimore medical circles.

When the War of the Rebellion became a fact, however, he found his surroundings less congenial owing to the pronounced secession sympathies of the locality. He then determined to stand loyal to his convictions, withdraw from the field in which he has been so successful and re-enter the military service. To do this he had to begin at the beginning and receive no credit for

his eleven years previous service. Undaunted by this however he appeared before the examining board, and, passing at the head of the class, was first assigned to duty with General Patterson and charged with the organization of general hospitals at Hagerstown, Frederick and Baltimore. He was then ordered to report to General Rosecrans at Wheeling where he was detailed as Medical Inspector of Camps and Hospitals. His efficient discharge of these duties attracted the attention of the Sanitary Commission, which was dissatisfied with the administration of the medical department of the army and which in the autumn of 1861, urged the removal of the existing head of the bureau and the appointment of Dr. Hammond as his successor, being assisted by petitions from a large portion of the scientific bodies throughout the country, but without success. A few months later, however, the collision between the Secretary of War and the Surgeon General rendered a change possible, and the appointment of General Hammond was secured, although he was opposed by the Acting Surgeon General, Surgeon Robert C. Wood, and by Secretary Stanton, who had a candidate of his own in the person of a Dr. Chaffee of California.

Surgeon Wood having for a second time failed to be appointed Surgeon General, set to work again to secure the Assistant Surgeon Generalcy. He was well acquainted with President Lincoln, having attended professionally in his family, and, soon after Hammond's appointment, went to the White House and asked for the appointment. The President replied that he would not interfere in the matter, and that Wood must apply to Secretary Stanton. Wood then went to Stanton only to be told that he must apply to Hammond as he, Stanton, had determined to appoint for that office the man whom the Surgeon General should designate. Wood then came to Hammond and said :

"General, I have been trying for the appointment of Assistant Surgeon General ; the President referred me to the Secretary of War, and the Secretary to you, saying that the appointment would go to the one you selected. Now I believe, that, considering my rank and the services I have done, I am entitled to the promotion. To be sure I was your rival, but never in a factious or dishonorable manner, and I am ready to give you a cordial and loyal support in your administration."

All this appealed to Hammond's feelings, and he replied "Dr. Wood, I will at once see the Secretary, and if the appointment depends on me, you shall have it."

He went to the Secretary and asked the appointment. The Secretary said, "But Mr. Surgeon General, have you fully considered what you are doing? Do you believe that, under all the circumstances Dr. Wood can give you hearty support?" Hammond said he thought he could. The Secretary said "I did not before think you a weak man, but Wood shall be appointed."

Later events showed that the Secretary was correct, and the General found it necessary to have another officer in the position. General (then Major) Joseph R. Smith was in charge of the Seminary Hospital in Georgetown when not very long after, General Hammond drove up to the hospital, entered, seated himself in the office and said :

"Smith, I am going to part with Wood, to send him west, and I am looking for some one to take his place in the office. I am so pleased with your management of your hospitals that I have come to ask you if you are willing to take Wood's place when he leaves. Wood has been so long practically in charge of the office, that it is hard for him to be a subordinate, or realize that I am Surgeon General. Your duties will be to manage the office proper, and thus give me leisure to perfect my plans for certain great reforms and improvements which I have under consideration ; also to perform such other duties as I may assign to you as my principal assistant. During my temporary absences the President will appoint you Acting Surgeon General, to perform my duties."

After a minute's consideration Dr. Smith replied, that if he thought him competent, he was willing. Hammond then said, "Well, that is settled," and after a few minutes spent in farther outlining the duties of the office, he left. Shortly afterwards, in July 1862, Dr. Smith's orders for duty in the office were issued. He promptly reported, and an intimacy and friendship then began between them which, without a disagreement or discord, continued till the day of Hammond's death. This lifelong friendship renders it possible for General Smith to speak most in-

timately of his colleague and to him this sketch owes much of its most valuable features.

Of the work of the new Surgeon General no better picture can be given than in the glowing words of Stillé in his *History of the United States Sanitary Commission*: "A new and vastly enlarged supply table, or list of articles which the Government would undertake to provide for the inmates of the hospitals, was also issued by order of the Surgeon-General, embracing many things essential to their comfort, for the supply of which the hospital fund had been hitherto the only and most precarious resource. Hospital clothing was also furnished to the patients under the new regime, a provision which, when their condition in respect to personal cleanliness upon their entrance to the hospital is considered, seems an indispensable prerequisite to their proper treatment. But the measures of reform introduced by the Surgeon General did not cease with his efforts to provide for the material comforts of the patients. The condition of the medical staff excited his most serious attention, and his struggles to maintain a high standard of professional excellence in it were never relaxed for a moment. To effect this important object he devised most generous and liberal plans, some of which were adopted, and others failed from a want of co-operation by the War Department. They were all characterized by that comprehensiveness of view which proved his thorough appreciation of the duties of his great office. As a means of securing the most competent men for the medical service of the army, he reorganized the boards of examination, and insisted upon a higher standard of attainment on the part of the candidate. He established also a new and complete system of hospital reports, which was designed to embody not merely a formal and barren statement of the number of patients in the hospitals, and of those who were discharged or died, but also such facts concerning their condition as would constitute valuable material for a medical and surgical history of the war. The interest and importance of such a history, not merely as a record of what had been done here, but as a valuable contribution to our knowledge of the general laws which govern the health and efficiency of armies, are too obvious

to need comment. In order further to accomplish this object, he instituted at Washington, an Army Medical Museum, in which was collected and arranged a vast number of specimens from the different hospitals, illustrating the nature of the peculiar diseases to which soldiers are liable, and the character of the wounds which are inflicted by the new missiles of war. The peculiarity of these wounds has essentially modified one of the most important departments of military surgery, and the specimens thus brought together in the Army Medical Museum, far exceeding in number and variety those of any other collection in the world, have served not only to advance the cause of science and humanity, but have rendered the Museum a just object of national pride. But the great central want of the system, which, left unsupplied, all the other improvements suggested by the Surgeon General would have proved of little value, was the want of proper hospital buildings. Fortunately for the completion of the circle of his plans, the necessary co-operation of those officers of the Government outside of the Medical Department, who were charged with the erection of hospitals, was at last obtained, and a large number were constructed on a vast scale in different parts of the country according to the pavilion system. The peculiar advantages of this system, and the wonderful results which followed its adoption in the improvement of the sick and wounded of the army, are a subject properly belonging to the medical history of the war. The best evidence we can give of the success of the experiment is to repeat the statement of the simple fact that the rate of mortality among the inmates of these hospitals was far lower than has been recorded of the military hospitals of any age or country."

The leisure afforded by transferring office details to Major Smith was well utilized by him in the work so brilliantly pictured by Dr. Stillé. While really of much less importance and infinitely less far-reaching in its effect, perhaps the most sensational act of his administration was his "Calomel Order," issued on May 4th, 1863. This order followed the receipt of a report from Medical Inspector Vollum who had been sent to inspect the sanitary condition of Grant's army on the Mississippi. Vollum comment-

ed on the prevalence of mercurial salivation in the army, and cited the instance of a Hospital steamer on the river, in which nearly every case was salivated. The few who were not salivated owed their escape to the fact that they had been too short a time under treatment to come under the mercurial influence.

Without quoting it in extenso, the order stated substantially that the reports of Medical Inspectors, and sanitary reports showed that the use "of calomel had been pushed to excess by military surgeons," causing "innumerable cases of profuse salivation" and "the not infrequent occurrence of mercurial gangrene." No doubt could exist that more harm had resulted from the misuse of both these agents (calomel and tartar emetic) in the treatment of disease, than benefit from their proper administration, and General Hammond therefore struck them from the Supply Table. Complaints as to this order were sent to the Secretary of War from numerous sources. He however called them "doctors quarrels," and not considering the case one for his intervention, sent the complaints to Hammond. In consequence of the widespread controversy and complaint which the calomel order caused Hammond sent a letter to many distinguished physicians throughout the United States asking them: "1st, To what extent do you prescribe Calomel and Tartar Emetic in your practice? 2nd, Do you regard these agents as indispensable in the treatment of disease? 3rd, In view of the facts that a large number of medical officers are young and inexperienced, and that soldiers cannot, in the field, be placed beyond the influence of atmospheric vicissitudes and exposure while undergoing medical treatment, would you recommend that the medicines in question be issued to Army medical officers, except as at present, upon special requisition? 4th, Do you, or do you not, think that more harm than good has resulted from the use of calomel and tartar emetic as medicines?"

"As may be supposed," says General Smith, "the responses to Hammond's letter varied greatly, and evinced many contradictory views. The order was defended by some and denounced by others. The most of the opposing opinion was from the valley of the Ohio and Mississippi. But they did very little to settle

the question at issue. Opinions however numerous, pro or con, could only have been evidence as to the existence of such opinions, but not evidence as to the guilt or innocence of calomel. So the order stood and General Hammond always maintained that issuing the order was a wise act."

A few days later, on May 7th, 1863, a new and still more ample Supply Table was issued. The Supply Table of the previous September had authorized the issue of calomel, but the new Supply Table failed so to do, though other mercurials were allowed. Practically, however medical officers got calomel when they wanted it on Special Requisitions as provided by the Surgeon General; but the Calomel Order materially curtailed the abuse of the drug.

In July 1863 the Surgeon General published to the Medical Officers a Report on Gunshot Wounds prepared under his direction by Surgeon John H. Brinton, including nine tables. These tables covered, (1) Gunshot Wounds, their Seat and Character, (2) Their treatment, (3) The character of the missiles causing them, (4) Amputations and their Results, (5) Excisions and Results, (6) Extraction of Balls, (7) Results of Trephining in 35 Cases, (8) Statement of Vessels ligated, and (9) Miscellaneous Operations.

This Report was followed September 8th, immediately after Hammond's removal from office, by a Report made by Assistant Surgeon Joseph J. Woodward under Hammond's direction, being a brief statement of some of the more important facts with regard to the influence of season and region on the Camp Diseases of the Army. It was accompanied by six tables and diagrams as to, (1) Monthly Mortality Rates, (2) Monthly Sickness Rates, (3) Monthly Rates of Camp Fever, (4) Monthly Rates of Intermitent Fever, (5) Monthly Rates of Diarrhoea and Dysentery, and (6) Monthly Rates of Catarrhal Affections.

These two reports were an earnest of good things yet to come in the Medical and Surgical History of the War of the Rebellion, for which the world owes an incalculable debt to the wisdom and foresight of Hammond, its projector.

In many ways he improved the status of the medical depart-

ment among which may be mentioned the liberal supply of medical books and journals, which has had so much to do with the efficiency of the army medical corps. He recommended the formation of a permanent hospital corps, the establishment of an army medical school, the location of a permanent general hospital at Washington, the autonomy of the medical department in construction of buildings and transportation of supplies, and the institution of a military medical laboratory.

In all his work however he was embarrassed by the fact that immediately after his appointment he incurred the displeasure of the Secretary of War and in the words of the Senate Military Committee in 1878, "it is reasonable, therefore, to infer that men of the positive natures possessed alike by Secretary Stanton and Dr. Hammond, would decline to yield or stand by for each other to pass, when they crossed and crowded upon what they conceived to be the path of mutual duty. When they collided it was the gage of battle hurled by both—a war by the Titans, a struggle for the mastery. One or the other must have fallen in a conflict of such natures ; for there was no middle ground of accommodation between them. Secretary Stanton, in the extraordinary pressure of the times, no doubt became impressed that the displacement of Surgeon General Hammond would conduce to the benefit of the public service, and, possessing the greater power, accomplished, by means of indirection, the desired result."

The situation then, in the Fall of 1863, culminated in orders by the Secretary detaching General Hammond from his work in Washington. So confident was the General of his own rectitude and the justice of his cause that he demanded trial by court-martial both in person and through his friends. This was granted and he was tried upon charges and specifications alleging his involvement in the irregular purchase of certain blankets and other supplies and an apparent question of veracity between him and General Halleck. In no case was any criminality proven nor was the conduct demonstrated other than consistent with the proper management of the Surgeon General's office. The prosecution was intrusted to Judge Bingham of Ohio, who manifested a most bitter and partisan animosity against Hammond which re-

quired constant control by the court. Nevertheless, as was later confidentially reported by one of the members, the finding of the court was acquittal; this was not accepted, however, and the court was reconvened for reconsideration and only then found the General guilty and sentenced him to dismissal.

The trial left Hammond in great pecuniary embarrassment and it was only through the courtesy of a professional friend, who raised a purse for his benefit, that he was enabled, pending his ultimate vindication to proceed to New York where he had determined to make his home and where he became a high authority on diseases of the mind and nervous system. He was appointed lecturer upon that subject in the College of Physicians and Surgeons, and later successively occupied a professorship of the same specialty in Bellevue Hospital Medical College, the University of the City of New York, and the New York Post-Graduate Medical School, of the latter of which he was one of the founders. His practice became enormous and exceedingly lucrative and his custom of leaving, during his consultation hours, his office fees upon his desk in the form of a pile of twenty dollar bills was a common subject of comment among the profession.

He was remarkable for the wide scope of his attainments. In 1862 he gave a dinner in honor of Director General Muir of the British Army Medical Service at which many distinguished specialists in medicine and science were also present. General Smith was invited and asked to help entertain the guests, but at the close he felt that he had been very derelict in fulfilling his function because his attention was so distracted by listening to General Hammond whom he heard conversing with each man on his specialty and apparently as well posted in every case as the specialist with whom he was talking.

He wielded a most facile pen and even when carrying the enormous burden of directing the medical department in the greatest war in history, found time to produce a comprehensive work on Military Hygiene. His medical books consist chiefly of works devoted to nervous affections and of these his treatises on "Diseases of the Nervous System" and "Insanity in its Medical Relations" are the best known. A complete list of his professional

contributions however would be too bulky for this series of sketches. It is interesting to note that he also entered most entertainingly into the field of fiction and as well produced a number of successful plays. His "Son of Perdition" is thought by some to be the best novel of the Christ ever produced and others rank high in their class.

When in 1878, he had acquired an ample fortune he opened the campaign for the vindication of his conduct as Surgeon General, which, as already stated, resulted in his restoration to the army, and appointment as Brigadier General on the retired list; his private means being ample he waived the pay of the grade. He returned to Washington and took up his residence in a splendid mansion, built according to his own designs, and established a large sanatorium for the care of cases of nervous diseases. Here he gradually diminished his active professional work for various reasons prominent among which was a cardiac lesion from which he had suffered for many years. On the fifth of January, 1900, however apparently forgetful of his infirmity, he ran rapidly up the stairs of his house, and was found shortly afterwards powerless with profound dyspnoea and cardiac depression from which he was relieved only by the merciful hand of Death.

The portrait which accompanies this sketch is made from a carte de visite taken in 1862 while he was in active service as Surgeon General. General Hammond was a man of superb physique and fine presence, standing over six feet, two inches in height and weighing about 260 pounds. He had a powerful voice, a pleasing delivery, and a remarkable flow of language which rendered him always a popular and interesting speaker.

The life of General Hammond is a remarkable instance of a successful combat against adverse circumstances. An ordinary character would have succumbed to the blow dealt him by the court-martial of 1863. That he should then have boldly cast his lot in the greatest city with fiercest competition in the country and attained personal, literary and professional eminence in a decade, and should have, in less than a score of years, achieved a reversal of the sentence imposed upon him and a reinstatement in the grade from which he had been unjustly deposed, is a story as unusual as it is gratifying.

Reviews of Books.

PHARMACY AND MATERIA MEDICA FOR THE ARMY HOSPITAL CORPS.*

AN outline of Pharmacy and Materia Medica, gotten up under the direction of Captain Reynolds by Sergeant Leiblinger will appeal to many others besides the men of the Hospital Corps for whose use it is particularly designed. It is a remarkably clear, compact and succinct statement of the subject and embodies in limited dimensions in available form an astonishing amount of information.

TUBERCULOSIS AND ACUTE GENERAL MILITARY TUBERCULOSIS.†

THIS volume of the American edition of Nothnagel's Practice is most timely and of especial interest in military practice. The work is a most exhaustive study of the subject, touching as it does upon every phase of tuberculosis and its care and treatment. Ample consideration is given to the constitutional and climatic phase of its therapeutics and a complete bibliography demonstrates the thoroughness with which Professor Cornet has utilized the work of others in addition to his own. Professor James has made frequent interpolations from American sources fully adapting the work to the use of the American profession.

*An Outline of Pharmacy and Materia Medica for the use of the Hospital Corps U. S. A. Compiled under the direction of Captain FREDERICK P. REYNOLDS, U. S. A., according to the Medical Supply Table U. S. Army, by JULIUS LEIBLINGER, Sergeant First Class Hospital Corps, U. S. Army. 12mo; pp. 73 with 17 illustrations. Washington, Government Printing Office, 1904.

†Tuberculosis and Acute General Military Tuberculosis. By Dr. G. CORNET, of Berlin. Edited, with additions, by WALTER B. JAMES, M.D. Nothnagel's Practice, American Edition, Vol. VII. Handsome octavo volume of 806 pages. Philadelphia, New York, London: W. B. Saunders & Company, 1904.

Original Memoirs.

OBSERVATIONS ON THE CAMPAIGN IN WESTERN PORTO RICO DURING THE SPANISH- AMERICAN WAR.

By CAPTAIN BAILEY K. ASHFORD.

ASSISTANT SURGEON IN THE UNITED STATES ARMY.

MAJOR General Nelson A. Miles landed at Guanica, Porto Rico on July 25th, 1898, with 3,554 troops, mainly volunteers from Massachusetts, Illinois and the District of Columbia. On August 1st he was reinforced by General Schwan's brigade of the 4th Army Corps and part of General Wilson's division of the 1st Army Corps. These reinforcements brought the strength of the American army in Porto Rico up to 9,641 officers and men. By the end of August the American forces had nearly doubled.

The Spanish forces, occupying chosen positions, numbered about 18,000 men, more or less equally divided between regulars and volunteers.

In a short time all the Spanish holdings, save the one at San Juan, were made untenable and a well planned expedition was brought to a sudden close by the peace protocol of August 14th, 1898, just as the guns of the central column were being trained on the Spanish trenches at the pass of Aibonito.

There were five engagements in all:—at Guanica road, Guayama, Coamo, Hormiguero and Las Marias, omitting the aborted attack on the mountain pass above referred to, one which promised a sanguinary and hard fought battle. The approximate total loss of Spaniards was 450, that of the Americans 43, in killed and wounded. The plan of campaign determined that one column should sweep off to the west, one to the east and one through the center of the island, with a starting point at Ponce in the south-

center, and a destination at San Juan where the three columns were to concentrate again. At the widest divergence of these columns diplomatic proceedings which culminated in a peace protocol nipped in the bud the onward march of our victorious army. Of the operations of this column which proceeded to the west and which was known as the Independent Regular Brigade, commanded by General Schwan, I will speak a few words before beginning an account of the surgical features of the campaign, believing that for a correct idea of the latter we must have some conception of the theatre of these military events. In this paper I have been much assisted by two works, Senn's "*Medico-Surgical Aspects of the Spanish-American War*" and Karl Hermann's "*From Yauco to Las Marias*". In describing the actual anatomical site of the wounds received I have quoted exactly from Col. Senn's clear and precise notes, adding to them such observations as I made at the time, of the first aid which they received on the field of battle.

Our column was composed of troops of the regular army. It was one brigade formed by the 11th U. S. Infantry, Light Battery D, 5th Artillery, Light Battery C, 3rd Artillery and the Hospital Corps. We were confronted by and had two engagements with a force composed of 850 of the Battalion Alphonso XIII, 200 of a battalion of volunteer infantry, 100 of cavalry, 40 of artillery, 60 guerillas, 52 volunteer guerillas, 30 marine infantry (volunteers) and a guard of 30, making a total of 1362 Spanish. Our forces rendezvoused at the small town of Yauco, six miles from Guanica, on the 8th of August, 1898. An uneventful and wearisome march was taken up on the morning of the ninth, twelve miles were accomplished and camp was made at Sabana Grande. The next day the march was resumed and ten miles was covered to San German. Here our seriously sick were left at the excellent Red Cross Hospital prepared for us by the native inhabitants, as word was brought that the Spanish garrison at Mayaguez were moving out on the road to contest our advance. These troops were nearly all regulars and presumptively would be able to make a sharp resistance. A few words on the condition of our troops at this time will be of much interest as bearing on their future history. Many of the men were recruits but of excellent physique.

During the voyage from Tampa, however, it became very evident that the baneful fever which so persistently menaced our camp in the United States was accompanying the troops in their trial at arms. No sooner had we left Tampa, than men began to sicken with typhoid fever. They were isolated on the deck of the transport, the only available mattresses—those in the officers' staterooms—were cheerfully given up to them and they were transferred to the "Relief" at Ponce. But this, unfortunately, was not enough to stop the encroachments of the disease and others were taken with it from the very commencement of the march, although most extreme care was exercised and a very complete supply of articles needful for the treatment of sick and wounded was provided by the thoughtful foresight of our chief, Major P. R. Egan, Brigade Surgeon. To us the axiom, the rationale of which has been so forcefully shown in Munson's work on Military Hygiene, since published, regarding the general liability of the recruit, and, above all, the young recruit, to disease and injury served to bring before us the danger of enlisting such men. Many of these young fellows, toiling along in the tropical sun, were utterly prostrated and required constant and watchful attention. Another note that should be made is that neither rum nor women played any part in the actual campaign.

Our line of march as far as Mayaguez was over an atrocious road, hilly but not mountainous, as we were following the coast; later, when we ascended the mountains from that town in pursuit of the fleeing enemy, the road became truly our greatest trial. The march was a trying one. Despite the slight distance covered, the effects of the tropical sun made each mile seem two and the eating of unknown and unripe fruit added the finishing touches to the oft repeated picture of the soldier "too tired to move on". They did move on, however, by the aid of the ambulances and the excellent common sense of their officers. The number of men thus affected was not very large and there was good discipline and excellent spirits to be observed among them. When, however, the march was resumed after a short rest in San German, the heat became very severe and, adding to the general discomfort, alternate showers and sun produced the effect of a vapor bath. Men and animals were hot and weary.

At about three o'clock in the afternoon we were in the center of a narrow valley, surrounded by mountains and with our objective, Mayaguez, beyond the line of hills which closed the outlet. Through this line of hills the road was seen to wind, ascending a few hundred feet before its dip to the sea on the other side. The road upon which we were proceeding bisected this valley longitudinally; between the road and the mountains to our left was a cane field and further on a marsh. On the right and about 1500 yards distant was the little town of Hormiguerro on a hill, while parallel with the road on the same side ran the rivers Rosario and Grande, winding about in the low land and converting it into a swamp from the heavy rains. These rivers united here to cross our road where a wooden bridge spanned the stream. About a mile and a half from the wooden bridge was an iron bridge crossing the Rio Grande again. In other words, our operations took place in swampy land, overflowed by these rivers. On passing the road leading off the main road to Hormiguerro, the Spanish outpost fired ineffectively into our troop of cavalry, two miles in advance of the main body, but they were quickly dispersed, the troop pursuing them clear into the town and taking position dismounted on the right of our line and under cover of the railroad embankment. This railroad ran from Hormiguerro to Mayaguez, at first on our right, but later crossing the road beyond the second or iron bridge. Just beyond this railroad and on the hills it skirted, lay the Spanish troops, their line extending from midway between this crossing and the town to a little beyond the bridge. The road, then, along which we were traveling formed one arm of an angle of 22 degrees of which the Spanish position formed the other arm. Their position was well taken, strong and high, commanding our extent of line, with a railroad embankment, two rivers and swampy land between it and our troops. Ours was in the road with only a swamp into which the troops could deploy. Just before crossing the first wooden bridge was a deserted sugar mill on the left of the road and about a hundred yards from it. This was indicated by our brigade surgeon as the field hospital. It could not have been better placed. The efforts of the General were now directed to the high ground north of the iron bridge,

the heart of the Spanish position, effectively blocking our advance on the city of Mayaguez. The advance guard, deployed as skirmishers and supports in line of squads, advanced to within four hundred yards of the iron bridge when the firing broke out from the Spanish side. This advance guard was reinforced. The fire was now very extensive,—the range of fire on the advance guard being about three or four hundred yards and that on the main body with which the Spanish left and center were dealing, about 800 yards. Through this interval between our advance guard on our left and the cavalry on our right the main body received heavy volley firing, badly aimed but by chance striking a number of our men. Here it was that the General and his staff became much exposed and that his aid was shot. Up to this time the position of the enemy could be but illy determined but the two companies of the advanced guard rushed the bridge, the stream not being fordable, and, soon reinforced from the main body with infantry, two Gatling guns and two pieces of field artillery, crossed the iron bridge and, breaking through the Spanish front, occupied the high ground to the right of the railroad, where they were joined by the cavalry which had been threatening the enemy's left. The main body now came up and the Spaniards retired in utter rout, many leaving by a waiting train for Mayaguez. If that train had been hit by the several shots aimed at it by the field pieces this paper would have a wider field to cover. The fight was over at six in the evening and the ground beyond the enemy's position served as a bivouac for the night which had about set in. In this engagement heat, a laborious march of thirteen miles, a large amount of sickness, the swampy ground, with a confusing and extensive line of fire from an unseen enemy should add to the credit of the American troops of whom their General said in G. O. No. 14, * * * *

“The Brigadier General Commanding desires to convey to the officers and soldiers of his command his thanks for their excellent conduct in the engagement they had on the 10th instant, near the town of Hormiguero, with the Spanish Forces in that vicinity. Concealed in a strong position, they poured a murderous fire into our troops about to go into camp after a fatiguing march”.

THE WORK OF OUR MEDICAL CORPS.

In a short time after the commencement of the engagement the improvised field hospital was prepared for the reception of the wounded. The building was most admirably adapted for its purpose for it was perfectly dry and there was a spacious platform raised some six feet above the ground and capable of accommodating about 80 field cots, so that the wounded had an abundance of room. All the wounded were immediately succored and brought under the care of the medical officers where the first aid dressings were applied. They were then sent to the ambulances from these first aid stations by litter, only a short distance away. The ambulances were fortunately able to penetrate well toward the firing line and at the farthest to which they were permitted to go an ambulance station was established. Here they were loaded into the ambulances and taken to the field hospital near by, where they were placed on the cots prepared for them. This hospital was well arranged for their coming. A cleanly-swept floor, an immense air space, a modified light, quiet and a cool and comfortable temperature made it a desirable substitute for hospital tents. As all the surgeons were busy at or near the firing line, an efficient steward prepared for their reception, boiling instruments, preparing dressings, etc., few of which articles were fortunately needed. As soon as the first wounded were sent back, a medical officer accompanied them and took charge of the hospital. We were free from dust, flies and confusion and at no time was seen that horde of useless assistants, more anxious to aid the wounded than to take their proper places in the fight. No one seemed excited yet no time was lost. The writer was left in charge of the wounded by the Brigade Surgeon after the engagement. Here we quietly remained until the late afternoon of the 12th of August when I was ordered to convey them to Mayaguez and to proceed thence with the column. Some of the sick, in fact, most of them, had been carried on to the town by the other medical officers. Carrying this order into effect with all the dispatch possible, we arrived late at night on the 12th at the beautiful and cleanly town of Mayaguez where we had proof of the foundation of the boast of its people that it was the richest,

most modern and most hospitable of the island. Conducted to the theatre we found as perfect a Red Cross Hospital as one could desire, spotlessly clean and well equipped. Many will attest to the excellence of the aid extended to us by the Red Cross societies of these little towns, entirely composed of Porto Ricans and thoroughly subordinating themselves to the actual needs of our hard worked Corps. Here our ambulances were unloaded and I proceeded to the camp outside the town.

At this point the writer lost all track of the wounded as on the 15th of August the "Relief", bearing the Chief of the Operating Staff of the Army in the Field, Lieut. Col. Nicholas Senn, took all aboard and sailed. As this town is directly on the coast, no difficulties were encountered in transferring them to the ship. Thus the writer has recounted their later history from Col. Senn's clear account. In this engagement the medical officers were five. They were disposed, one with the cavalry one with the field hospital and the rest with the main body and the advance guard. The Hospital Corps were disposed in squads covering appropriate parts of the line. All wounded were removed from the field before the engagement was over. The following is a brief account of their injuries:

Case 1. Lieut. J. S. Byron, 8th Cavalry, detached from his regiment as aide on the General's staff. They were much exposed, as they were well forward in the line of fire. Several of their horses were struck and the above named officer was shot in the foot as he sat in his saddle, "the ball penetrating from side to side on the dorsal aspect, making a groove upon the upper surface of the second and third metatarsal bones without fracturing them". He was almost immediately attended by a medical officer and a first aid dressing was applied. He was conveyed to the ambulance in the road by litter and from thence to the field hospital. The wound healed by primary intention under the first dressing.

Case 2. Sergeant William H. Wheeler, Co. A, 11th U. S. Infantry, in the advance guard. He was "in a standing position with his side in the direction of the enemy, his gun down ready to reload. The bullet struck the tenth intercostal space, left side, in the postaxillary line, and made its exit about four inches from the spine in the lumbar region, close to the margin of the last rib". This man on being attended by the medical officer was immediately placed in the dorsal decubitus and conveyed to the

field hospital with great care, after he had received the usual dressing. Here he was given large doses of opium and was not redressed. The fear of the surgeons was that important viscera might have been injured, both in this and in the following case. Both of these cases suffered considerable shock and pain but both recovered.

On his return to Porto Rico this man was seen by the writer some nine or ten months later, serving with his regiment in San Juan, and he seemed to be in perfect health, although very vague neuralgic pains were complained of at times. I could not trace any definite relation between this neuralgia and the injury received at Hormiguero.

Case 3. Corporal Amos Wilkie, Co M, 11th U. S. Infantry, wounded by the enemy's volley firing in the deploying of his company. "The bullet entered the right lumbar region just above the crest of the ilium, mid-axillary line, and emerged about two inches to the left of the spine and four inches above the left sacro-iliac synchondrosis". This patient had symptoms of intra-abdominal injury but, after having received identically the same treatment as in the last cited case, within thirty six hours he was free from pain, vomiting and shock. Recovery.

Case 4. William Rossiter, Co G, 11th U. S. Infantry. "Shot through the inferior maxilla. The ball entered just below the margin of the bone on the right side, about an inch in front of the angle, and emerged over the angle of the bone on the opposite side, perforating the soft tissues of the neck in a transverse direction". When first seen by the surgeons the hemorrhage was severe. It was controlled by torsion of the ends of two small vessels at the wound of exit and aseptic compresses. The bone was not fractured on either side and healing was completed in a few days by primary intention.

Case 5. Private Henry C. Errick, Co C, 11th U. S. Infantry. "Wound of entrance in the left leg over the outer aspect of the middle third; the ball passed downward and inward and emerged about five inches above the internal malleolus". There was slight hemorrhage but no fracture. Recovery. Healing by first intention under the primary dressing.

Case 6. Corporal Joseph Ryan, Co A, 11th U. S. Infantry, with the advance guard. "Bullet passed through the ankle joint. Wound of entrance over the internal malleolus of the left leg". The first aid dressing was applied and the wound healed by primary intention. There was not the slightest evidence of infection or of synovitis.

Case 7. Private Samuel Copp, Co A, 11th U. S. Infantry, wounded while lying prone on the summit of the hill, taken by the advance guard. "He received a scalp wound over the dome of the cranium. 'Wounds of entrance and exit about two inches apart'". This man received none of the force of the bullet on his skull for not even one sign of concussion supervened. The wound healed by primary intention under the usual dressing.

Case 8. Private Arthur Sparks, Co C, 11th U. S. Infantry. Wounded in the lower third of the left thigh. "Wound of entrance on the external anterior aspect of thigh about five inches above the patella. The bullet passed directly backward, and came out on the opposite side, on the same level, without injuring the femur". Healing by primary intention under the usual dressing.

Case 9. Private Paul J. Mitzkie, Co D, 11th U. S. Infantry. "Bullet made a flesh wound three inches above the external malleolus, which healed in a few days by primary intention under the usual dressing.

Case 10. Private Daniel J. Graves, Co M, 11th U.S. Infantry; wounded by a deflected bullet in the thigh. "The bullet passed through the thigh in an antero-posterior direction, fracturing the femur at the junction of the middle with the lower third". This man suffered intensely for a few hours. The surgeon applied a first aid dressing to the wound of entrance, splinted the limb and conveyed him to the field hospital. Here the Brigade Surgeon, finding the bullet beneath the skin directly behind the wound of entrance, extracted it under aseptic precautions and he was reported by Col. Senn as follows: "A week after the injury the patient was in excellent condition, the wounds remaining aseptic and healing rapidly.

Case 11. Private John L. Johnson, Co D, 11th Infantry, received a gunshot injury of the left leg. "The bullet passed in an antero-posterior direction through the middle third of the leg, going through the space between the tibia and fibula". Healing by primary intention.

Case 12. Private George Curtis, Light Battery D, 5th Artillery "received a wound of the chest while in the saddle. The bullet passed through the chest from the second left intercostal space, in front, to the middle of the outer border of the scapula on the same side." A first aid dressing was applied by the surgeon, opium was given and he was placed in the semi-recumbent position. This man was one of the most seriously wounded and it was believed at the time that he would die. The hemoptysis was severe at first and coughing and pain was only relieved by the

large doses of opium. There was primary union of both wounds and there are no after effects reported.

Case 14. Private Samuel G. Fry, Light Battery D, 5th Artillery "was injured by a deflected bullet, as he stood by his gun. The bullet passed through the soft tissues in the right anterior axillary fold without doing any further damage". The wound healed under the first dressing by primary union.

Case 15. Corporal John Bruning, Light Battery D, 5th Artillery "The bullet passed transversely through the soft tissues of the right forearm on a level with the wrist in front of the radius and ulna. The bullet evidently cut the ulnar nerve and vein, as shown by the paralysis of the parts supplied by the nerve below the seat of the wound". A first aid dressing was applied and the wound healed by primary intention.

Killed: Private Fred Fenneberg, Co D, 11th U. S. Infantry, shot through the heart and instantly killed.

CASUALTIES ON THE SPANISH SIDE.

When the Spaniards retired they carried with them their wounded and placed them in the same Red Cross Hospital at Mayaguez. As I was under orders to go as soon as possible to camp I had no opportunity to ask the nature of their injuries nor, indeed to count them and have since been unable to find out anything about them but it may be stated that there were more of them than of our men. Only one of their wounded was left on the field of battle a second Lieutenant; he had fallen too near our firing line for them to get him and it was said by the surgeon who brought him into the American field hospital that he was discovered lying on the ground with two Spanish Hospital Corps sitting stolidly beside him. All three were brought in and he was found to have been previously treated by his own surgeons. His wound was a perforating one of the left thigh, the bullet having entered anteriorly and external to the hip joint and passing directly backward without injuring the bone. Some one had stuffed a rag soaked in Monsell's solution into the wound. In spite of this, this officer, under proper antiseptic dressings, entirely recovered in about two weeks. One other casualty occurred in a native Porto Rican negro, an unfortunate whose curiosity proved to be his end. He had approached on foot well into the firing line when he was struck by a ball in the region of the umbilicus and

died instantly, probably of hemorrhage. It was the source of greatest surprise to us all that more of these people were not hurt as even during the noise of the fight they kept getting into the most dangerous positions both from our fire and that of the enemy.

Summing up, then, the surgical results of this campaign we see the favorable effect of,—

1. The comparatively short time before we succeeded in bringing into action our enemy.

2. The character of the firearm used by the Spanish—a Mauser.

3. Our excellent medical and surgical equipment.

4. Our adequate number of medical officers and Hospital Corps men, the latter of whom did to the letter what was expected of them and did not unnecessarily interfere with wounds, bringing the wounded promptly to the first aid stations.

5. Our excellent field hospital and its favorable nearness to the field of battle.

6. The rest of forty eight hours in the hospital after these wounds were received.

7. The sensible preparations made for the reception of the injured by the Red Cross societies in Mayaguez.

It is also proper to be remembered that the wounded did not lie unattended on the field nor was there an instant when our troops wavered in this brisk little fight, necessitating any change in the location of our surgical base. Undoubtedly the rapid transfer of the wounded five days after their injuries to a clean and modern hospital ship perfected their rapid cure.

It would be but repetition to dilate on the character of wounds produced by the high velocity, small calibre rifle, a subject now so ably discussed and well known to every member of this Association. Suffice it to say that no explosive effects were seen and that the Spaniards committed no such breach of the laws of war as using a deforming bullet. In the decent observance of all the modern conceptions of the civilized world concerning warfare the Spaniard in this campaign leaves no room for criticism. There was one well defined and carefully observed point worthy of note.

In the perforating wounds noted the wounds of entrance and exit seemed to be of equal size.

That our loss was not a greater one was to be remarked upon. Fully realizing the tendency of one to overestimate from the noise of battle the amount of damage done, it is nevertheless to be wondered at that with their tremendous fire more were not struck. Although our men were so efficiently handled, bad marksmanship was to be justly attributed to the enemy. Another point of interest is that more of the advance guard, so much more exposed, were not hit. There were only three of them struck and all the rest were with the main body.

Lack of space forbids my touching on the sick but some idea may be obtained by noting the fact that about one fourth were on the sick report August 27th. Our subsequent advance from Mayaguez into the mountains, a most laborious but rapidly consummated march ended in the engagement of Las Marias where in a position somewhat resembling that occupied by ourselves at Hormiguero the Spanish troops were forced to fly or surrender. There were no casualties on our side but a large number of killed and wounded on theirs—a number impossible to determine. Talking with an ex-Spanish soldier, now in our army, I learned that their greatest loss was in drowned, for in attempting to get away to the mountains beyond the river they were swept down the swollen stream and lost. Here the Colonel commanding, the Lieutenant Colonel, several officers and about sixty of the men were taken prisoners and our little part in the Spanish-American war was brought to a close.

In brief the casualties of the other three fights were:

At Guanica road: One killed and 15 wounded, of whom one died a day or two later. Most of the injuries here were flesh wounds.

At Guayama: One death and 11 wounded. Of these one was shot through the pelvis and one through the elbow joint. Both were reported by Col. Senn as doing well a few days later.

At Coamo: Here the Spaniards occupied a high position but were dislodged with a slight loss on our part.

THE DIFFERENTIAL DIAGNOSIS OF TYPHOID FEVER IN ITS EARLIEST STAGES.*†

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THE term, "earliest stages," while it limits in a measure the ground to be covered by this essay, is vague and indefinite and may either include only the earliest prodromata or the first symptoms after the fever has commenced or both. The author understands the term "earliest stages" to include the period of incubation and the first seven days of fever, and has not, therefore, endeavored to eliminate diseases which complicate the diagnosis after this time only.

The differential diagnosis of a disease presenting such multiplicity of aspect as typhoid fever is necessarily difficult, and especially is this true in its earliest stages, when few infectious diseases exhibit such great variations in their manner of attack and onset. The extreme variability of the clinical factors to be considered, the intensity of the infection, the resistance of the patient, the sanitary surroundings, all render it impossible to tabulate with any degree of accuracy, the differences existing be-

*In the following article the author has drawn extensively on many standard works and also upon the medical journals, both foreign and domestic. He is aware that too great an amount of medical compilation and redundancy is being imposed daily upon the medical public as original work, and has endeavored as far as possible to assemble only those facts which bear directly upon the subject in hand. He has fused his own experiences with those of many other observers and tried to give an impersonal resumé of the whole, endeavoring to treat the subject in its entirety, rather than make the paper an excuse for a dissertation on one particular point.

In the list of references, an attempt has been made to mention the name of every author whose work has been quoted, or from whom ideas have been borrowed for this essay. Experiments have not been quoted in detail, as they are at best uninteresting reading, and only the results of such work have been here recorded.

†The essay to which was awarded the second place in the Enno Sander Prize Essay Competition for 1903.

tween the earliest manifestations of typhoid fever and those of diseases which may resemble it. Were it possible to demonstrate with ease and certainty the presence of the bacillus typhosus or its products at every stage of the disease, these difficulties would cease to exist, but unfortunately no satisfactory method has yet been brought forward which fulfills all these requirements ideally.

During the period of incubation no entirely satisfactory bacteriologic method of diagnosis exists and even clinical signs are hazy and uncertain. Not only is it practically impossible to determine exactly the time of the receipt of the contagium, but it is equally difficult to mark the dividing line between the period of incubation and the actual commencement of the disease.

Different organs may bear the brunt of the infection and consequently the manifestations of the disease may be extremely variable; certain symptoms commonly present may be replaced or masked by others referable to the lungs, kidneys or to derangement of the mental functions. As Herrick has so truthfully remarked, typhoid fever is not only an imitator of other diseases but many other diseases imitate typhoid fever. Even the length of the initial period is variable, occupying from one to three weeks, and at such times patients are rarely under observation.

The many forms which typhoid fever may assume also form an obstruction to early diagnosis. It may be abortive, mild, severe, hemorrhagic, renal, pneumonic or ambulatory. It may be modified or masked by the strength of youth or the weakness of old age or childhood.

The ill-defined languor and indisposition, mental depression, headache, vertigo, sacral pain, anorexia, and irregularity of the bowels, in the absence of fever and physical findings, are in sharp contrast to the initial period of other febrile diseases, which during this stage generally present no manifestations. In those cases which come under close observation a careful examination of the temperature curve may show wide daily fluctuations of temperature, even though fever be absent. This taken into consideration with the symptoms will often put a careful clinician on the road to an early diagnosis. Pepper claimed to have been led

to anticipate an attack of enteric fever by the unusual dullness of hearing and persistent occipital headache, following a few days of malaise.

Epistaxis is of differential value simply as a part of the symptom-complex. It occurs, however, with far greater frequency in typhoid fever than in many other diseases, which are apt to be considered in the differential diagnosis. Its value is diminished chiefly by the fact that it also occurs early in cerebrospinal meningitis and in acute miliary tuberculosis.

The first febrile symptoms mark the actual commencement of the disease, the fever gradually increasing, and accompanied early by slight, oft repeated chilly sensations. This occurs with such regularity that in cases ushered in by a hard chill and a sharp rise of temperature, typhoid fever is usually eliminated from the diagnosis at once. The temperature rises gradually with slight morning remissions and at the close of the first week usually reaches 40° C. The platted curve of these step-like gradations should be of great weight in the differential diagnosis. It should be mentioned in this connection, however, that while the gradually ascending temperature curve is typical of typhoid, there are cases occasionally in which there is a sharp initial rise in all respects similar to that of other infectious diseases.

Remittent malarial fever presents very irregular curves. Typhus, relapsing fever, scarlet fever, measles and smallpox all exhibit a sharp initial rise of temperature. Intermittent malarial fever presents paroxysms of fever hardly to be mistaken for the steady progression of enteric fever. The disease presenting the febrile movement most closely resembling typhoid is Malta fever. If the history of exposure be elicited, the diagnosis can only be made by the clinical and bacteriological findings. A differential diagnosis of this fever is almost impossible in the majority of cases without the aid of the microscope and the serum test.

It will also be observed that the pulse rate of typhoid fever, while it exhibits a striking parallelism to the temperature curve, is relatively infrequent and does not attain the rapidity which we are accustomed to find in like degrees of fever. In no other febrile disease does this occur with such regularity.

By the fourth or fifth day the pulse is already dicrotic and usually remains so throughout the disease. This occurs more often in typhoid fever than in all the other infectious diseases put together and as will be shown, is of great differential value.

Oddo and Audibert, in the *Gazette des Hopitaux*, under the title "*Le dicrotisme dans la fièvre typhoïde*," give some interesting facts illustrative of the character of the pulse of typhoid. They speak especially of the frequency with which dicrotism occurs during the initial period, stating that in the great majority of their cases it was present on the day of entry of the patient into the hospital. In a few cases this phenomenon was an early symptom only, disappearing in a short time. The authors accordingly recognize several types, dicrotisme ephémère, and dicrotisme persistant, the latter being subdivided into dicrotisme continu, dicrotisme secondaire and dicrotisme intermittent. In all, fifty cases were examined. Thirty-four of these presented dicrotism. Of these thirty-four, six were ephemeral and lasted from ten to forty-eight hours, and thirteen were continuous. In five cases the dicrotism was continuous but disappeared about the twentieth day and reappeared about the twenty-fifth, and continued until the close of the disease. This is the so-called dicrotisme secondaire. In thirteen cases the dicrotism was intermittent, continuing for two or three days, with an intermission of about the same length of time. From these cases, which were not selected, it would appear that the dicrotism, though valuable, is a variable sign and should be carefully searched for, even though absent when the patient is first examined.

The average pulse tension of typhoid fever is about 140. Just what diagnostic import is to be attached to this fact the author is not prepared to state. From his limited experience with the tonometer of Riva Rocca, he is led to believe that careful tabulation of the pulse tension in various diseases, together with the accurate recording of the various factors which may tend to raise or to lower pulse tension, will prove of considerable value in differential diagnosis.

Of great diagnostic significance are the roseola, which appear during the latter half of the first week, and are distributed upon the abdomen, chest and back. The roseolous exanthemata

of other infectious diseases in some cases resemble it, but rarely so closely as to deceive an experienced observer. Taken into consideration with the state of the spleen and the bowels, the time of the eruption and the subsidence of the rash, its succession of crops, its characteristic distribution and efflorescence, it is perhaps the most valuable single sign of the disease. Its value is enhanced by the fact that it is not preceded by an evanescent erythema as are most of the papular rashes of the acute exanthemata. Further, many reputable observers have recently determined that in the greater number of cases, the blood obtained from the rose spots contains the bacillus typhosus.

The typhoid eruption appears later than that of any of the other exanthematous diseases; that of the r  theln appearing on the first, scarlet fever on the second, measles and smallpox on the third, typhus on the fifth, and typhoid on the sixth or seventh day of the disease. The rash of r  theln is bright pinkish-red and lasts but two or three days; that of typhoid comes on in crops and the entire rash lasts much longer. Scarlet fever presents a subcuticular flush which may be so intense that the patient's skin may have the color of a boiled lobster, yet a noteworthy fact is the exaggeration of redness at certain points so that the skin has a mottled appearance. No rash like this occurs in typhoid. The eruption of measles is macular. The macules are dusky red and tend to coalesce and arrange themselves in crescentic areas. The typhoid roseola are papular, bright pinkish-red and rarely coalesce. The papules of variola are shotty and do not disappear on pressure as do those of typhoid. Typhus presents a dusky subcuticular mottling. The typical typhoid eruption is raised above the level of the surrounding skin.

One of the most unique of recent diagnostic suggestions is that of Gibbes to recognize the rose spots by photographic processes before they are visible to the unaided eye. He uses an orthochromatic or non-halation plate, or in the absence of one of these, a ray filter. Care is taken to focus exactly and the development is not pushed too far. A slow developer is used. By this means he has in several instances anticipated the roseola by several days.

In relation to the skin manifestations of typhoid, mention may be made of the drug rashes which may tend to cloud a diagnosis. Copaiba roseola are found most often on the extremities and do not possess the bright hue of those of typhoid. Furthermore, they appear suddenly, itch, and disappear on the withdrawal of the drug. The rash of quinine and atropine both resemble scarlet fever more closely than they do typhoid. Turpentine produces a blotchy rash, scarlatiniform in character and only rarely resembling typhoid.

From the beginning of typhoid there is a progressive diminution in the number of white blood corpuscles. There is usually also a reduction in the number of red blood corpuscles and a corresponding decrease in the percentage of haemoglobin. The red cells rarely exhibit marked changes in form, size or color. The latter changes are found in most infectious diseases but the absence of leucocytosis is of significance in the elimination of pneumonia, cerebro-spinal meningitis, sepsis and other diseases usually accompanied with an increase of white corpuscles.

Although enlargement of the spleen is observed in all infectious diseases, it is of especial diagnostic significance in typhoid fever. There are reported cases in which it is demonstrable during the period of incubation but it is very unusual to find this condition before the middle of the first week. In few other infectious diseases does the enlargement occur so early or persist so long, if we except Hodgkin's disease and malaria. Exception must be made in the case of typhus, however, in which the enlargement occurs during the first days of fever.

The stools of typhoid fever present no chemical or physical diagnostic peculiarities, if the presence of the bacillus of Eberth be excepted. However, their thin liquid ochre-yellow "pea-soup" character, penetrating ammoniacal odor, tendency to separate into two layers, and their relative infrequency, will always call to the mind of the clinician, typhoid fever.

The diazo-reaction of Ehrlich may be found first occurring in typhoid from the fifth to the thirteenth days, and continuing while the disease is at its height. It is diminished in value by the fact that it may be found at times in pneumonia, scarlet fever,

malaria, variola, measles, septic conditions and advanced malignant disease. Its absence in a case which otherwise closely simulates typhoid, decides rather against the latter.

The negative role of profuse sweating, herpetic eruptions, jaundice, coryza, conjunctivitis and vomiting is to be noted. Profuse sweating would point rather to acute tuberculosis, relapsing fever, pyaemia, acute ulcerative endocarditis or acute articular rheumatism than to typhoid. Herpes occurs with frequency in malaria, pneumonia, epidemic cerebro-spinal meningitis, and after the ingestion of salicylic acid, but very rarely in typhoid fever. Jaundice would indicate Weil's disease, remittent malarial fever or acute yellow atrophy of the liver, rather than typhoid. Coryza and conjunctivitis at the onset would cause the diagnostician to incline more to the belief that measles or influenza existed; and vomiting would point to variola, typhus or cerebro-spinal meningitis, rather than to typhoid. "It must be emphasized that the ordinary symptoms of coryza—sneezing, increased secretion, conjunctival catarrh—are among the greatest exceptions, at least in moderately severe and severe cases of typhoid fever, and may be thrown in the balance against a diagnosis of typhoid fever. Severe infectious conditions with a predominating coryza generally have some other significance. Under such circumstances typhus fever and influenza especially would have to be considered."

Other symptoms referable to derangement of the respiratory organs, have not uncommonly to be taken into diagnostic account. For the most part they obscure rather than aid in the diagnosis. Epistaxis has already been commented upon. It depends, as do most of the manifestations occurring in the upper air passages in typhoid, upon the spongy hyperaemic condition of the mucous membrane. It is observed most frequently during the period of incubation and in the beginning of the febrile stage, and occurs in about seven per cent. of cases.

Tonsillitis and laryngitis occasionally occur early and from the fact that the bacillus of Eberth has been repeatedly isolated from these locations, it would appear that in some cases, at least, the initial infection takes place in these organs. It may also be

noted in this connection that the bacillus typhosus has been isolated from the sputum in the initial bronchitis sometimes met with. Just how much diagnostic weight is to be assigned to such findings it is hard to say, but with improved bacteriologic methods it may be considerable.

The field, which has long held forth the greatest promise of an infallible diagnostic method, has been that of bacteriology. As has been stated, these expectations have in part to be fulfilled, but much has already been accomplished; the bacillus typhosus has been clearly differentiated from the colon bacillus; the specificity of the agglutinating action of immune serum has been demonstrated; cultures have repeatedly been made from the rose-spots, urine, feces, sputum, and, what is of greater importance in the early diagnosis, from the blood itself.

Before considering the differences which exist between the bacillus typhosus and the colon bacillus, a brief description of the morphological and biological peculiarities of Eberth's bacillus will be à propos. The bacilli, as ordinarily seen, are short thick rods about the length of one-third the diameter of a red blood corpuscle. The ends are rounded and their width is about one-third their length. They are actively motile and possess large numbers of flagellae, which spring from the entire surface of the bacillus. In different environments the bacilli undergo various alterations in form, size and arrangement. This has been the cause of many contradictory statements in regard to the biology of the organism. Undoubtedly there does exist a group of organisms which are intermediate in their biological manifestations between the typhoid and the colon bacilli. Whether these belong to the colon group or to the typhoid group or are in a separate division is a mere matter of nomenclature; the fact that they have been repeatedly isolated from the blood of patients, and the fact that these organisms display the Pfeiffer phenomenon with immune serum, is sufficient proof of their existence. They will be considered at greater length under the discussion of the elimination of paratyphoid fever from the diagnosis of typhoid fever.

The typhoid bacillus displays facultative anaerobiosis and grows readily upon the various culture media, especially the

potato, at room temperature. The investigations of Gaffky into the cultural peculiarities upon the potato, have been the nucleus from which have sprung many valuable methods for isolating the typhoid bacillus.

Of the especial culture and biological differences existing between the colon and the typhoid bacilli little need be said. The longer and more numerous flagellae of the bacillus of Eberth, its greater motility, its cultural peculiarities on potatoes, litmus milk and glucose agar, and its specific reaction to the typhoid serum, render its recognition comparatively easy.

The reaction of the colon bacilli to the serum of guinea pigs immunized against it and the similar reaction of the paracolon group should be especially mentioned as differentiating them from the typhoid bacilli. To be sure the typhoid bacillus also reacts to these sera but only in the low dilutions and therefore would not deceive a careful and experienced observer.

The Widal method of serum diagnosis has probably received more space in the typhoidiana of recent years than any other single sign of typhoid fever. As this paper includes the differential diagnosis of typhoid fever in its earliest stages only, any prolonged discussion of the methods and shortcomings of the agglutination test, would be out of place.

The lysogenic action of the serum has proven in the hands of thousands of competent observers to be of inestimable value, but the statement of Widal that the reaction occurs as early as the end of the first week, has been fulfilled only in the minority of cases. It is unfortunate for the early differential diagnosis that the occurrence of the reaction is usually delayed until the tenth day and may not present itself until late in the disease. It is equally unfortunate, that the reaction occurs during health with the blood of individuals who have never had the disease; that it is found in the presence of other diseases, especially the acute infectious diseases; and that it sometimes persists for years after an attack of typhoid fever. It is to be remembered, however, that these errors are only apparent and that they occur only when the lower dilutions of the serum are used. With the higher dilutions and careful noting of the length of time elapsing before

the reaction occurs, the liability to error will be greatly minimized.

Only very recently, a method, which combines the serum reaction of Widal and the culture of the bacilli from the stools, has been introduced by Wolff of Hartford. It is very original and evidently practical, as will be seen by the following excerpts from Wolff's original article:

"The technique is very simple. A loop from the feces of the suspected case is smeared upon the surface of an agar slant in a prepared tube. From this first specimen one or more bouillon cultures are prepared. The bouillon must react from 1 to 2 per cent. *alkaline* with the $n/10$ acid, using phenolphthalein as the indicator. The infected bouillon is now incubated at the usual temperature for twelve hours, when we are ready to make the examination. A sample of the blood is taken at the same time the specimen of the feces is procured. This is mixed with the bouillon culture by the usual procedure and placed upon the stage of the microscope. If now there is sufficient agglutinative material present, the typhoid bacilli (if they exist in the culture) will very shortly form clumps in the fields, which will be observed full of colon bacilli in active motion; and if this reaction does occur, we can of course safely say that the case has advanced at least to the second week of the disease. Should no reaction occur, another sample of the bouillon culture is tested with the blood from an advanced case of typhoid fever, the agglutinative power of which has been tested by the ordinary method, with a pure culture of the bacillus of Eberth. Indeed it is necessary for the proper use of this test to keep in stock a number of specimens of blood from well-marked typhoid cases. These can be kept in a dry place, and they retain their power to produce a reaction with a pure culture, probably indefinitely. With this blood, if the feces contain any typhoid bacilli, a positive and distinct reaction will shortly occur, the clumps of typhoid bacilli being more or less numerous according to the number of typhoid organisms present; while the still motile colon bacilli occupy the rest of the field, and are seen to be in active motion. This indicates that the case is one of typhoid fever, and that the

disease is in an early stage, at least from the middle to the end of the first week. By means of this simple method we are enabled, 'in my opinion,' to make an accurate diagnosis in the early stages of the disease when the other symptoms may be more or less masked, and thus remove many elements of doubt in a suspicious case."

Within the past two years blood cultural methods have been constantly brought forward which demonstrated the bacilli in the general circulation. Recently, however, the bacilli have been demonstrated prior to the occurrence of the Widal reaction and, in a few instances, before the enlargement of the spleen or the appearance of the roseola.

The method of Seeman for examining the blood obtained from the rose-spots is perhaps the simplest. A drop of bouillon is placed over the sterilized skin and an incision made into the rose-spot through the bouillon. A little of the blood from the rose-spot is then squeezed out and mixed with the bouillon, which is examined by the ordinary cultural methods. The examinations of the blood obtained from the rose-spots is not without limitations, especially in the diagnosis. The spots do not appear before the sixth or seventh day as a rule and in doubtful cases may be absent even then. To be of value the rose-spot must be quite fresh, as the old bacilli are too weakened to grow well on ordinary media. Further, if the observer is competent to make a bacteriological examination of the fluid obtained from a rose-spot, he is just as competent to examine blood obtained by venesection.

The technique of this method of investigation is comparatively simple and can be easily carried out in any fairly well equipped laboratory. The most important factor is the avoidance of contamination. To this end, the arm at the bend of the elbow is prepared by the usual surgical methods and a wet bichloride dressing allowed to remain until the time of taking the blood. The hands of the operator are prepared as for an aseptic operation. A constriction is placed above the patient's elbow to distend the veins and the skin is anaesthetized by pure carbolic acid or ethyl chloride. A solid metal or glass syringe, provided with a tight piston and a sharp needle, is boiled five minutes.

The needle is passed directly into (not through) the vein, great care being taken not to contaminate it in any way during the procedure. Five cubic centimeters of blood are withdrawn and distributed equally between five Erlenmeyer flasks, each containing 100 c.c. of bouillon. These are well shaken to distribute the bacilli from within the clots, and incubated for twenty-four hours, when, if a culture is apparent, transplantations may be made on the various media. The original flasks may be incubated twenty-four hours longer and a stab culture then made on agar. If the hanging drop at this time shows a motile organism, a six hour culture in bouillon is made and the Widal reaction tried with a known immune serum. The results of this method have proven very satisfactory and its value in early diagnosis is shown by the fact that it occurs in about 87.5% of cases during the first week.

As an evidence of the high diagnostic value of blood cultural methods in diagnosing typhoid, may be quoted Schottmuller, who, in his series of 119 cases, discovered the bacillus of Eberth in the blood in 84%. The earliest case in which it was possible to make an examination was on the second day of the disease, and the result was positive. In a great many cases typhoid bacilli were discovered before the Widal reaction occurred. These investigations must naturally alter our idea of the pathology of typhoid, in that they show, that, throughout the entire course of the disease, the bacilli circulate in considerable number in the blood. This accounts for the occurrence of the roseola and remote inflammatory changes during the course of the disease.

Typhoid bacilli have been frequently isolated from blood obtained by splenic puncture. The date of their appearance in splenic blood is probably very early and, from a diagnostic standpoint, very important. This has, in the past, led many, "who rush in where angels fear to tread," to adopt this method of procedure, regardless of the very grave consequences which it may entail. The practice is now discountenanced by most investigators and has given way to the examination of the blood obtained from other sources.

Typhoid bacilli have long been known to exist in the stools and have been isolated in many cases, but only after the use of

much difficult laboratory technique. The great objection to the bacteriologic examination of the stools has been the extreme difficulty in separating the typhoid bacilli in pure culture, uncontaminated with the colon bacillus.

The method of Remy has proven successful in the hands of several investigators. The principle underlying it is the use of a medium which endeavors to approximate the chemical constitution of the potato, and to this end, definite amounts of asparagin and several of the inorganic salts are added. Just before using a little milk sugar and two drops of a 1 to 40 solution of carbolic acid are added to each test tube. The feces are diluted about 1 to 8000 and plated with the melted medium. At room temperature, colonies appear in forty-eight hours. The colonies are transferred to bouillon and examined for motility and also cultivated to determine gas or indol production. By this method the bacilli have been found in several reported cases before the occurrence of the Widal reaction.

Several other equally good methods, each working on a different principal, have been introduced within the past two years. That of Hiss has met with considerable approval and, as he has outlined his method with far more clearness than the author can, a portion of his original article on the subject is herewith inserted:

"Two media are used ; one for the differentiation of the colonies of the typhoid bacilli from those of the colon group, by plate culture ; and one, for the differentiation of these forms in pure culture, in tubes.

"The plating medium is composed of ten grammes of agar, twenty-five grammes of gelatin, five grammes of sodium chloride, five grammes of Liebig's extract of beef, ten grammes of glucose and 1000 c.c. of distilled water. The final titration of this medium should indicate the presence of about two per cent. of normal acid, (1.8% to be exact), phenolphthalein being the indicator ; and the medium should be brought to this acidity by the addition of normal hydrochloric acid solution.

"The growth of the typhoid bacilli in plates made from this medium gives rise to small light greenish colonies with irregular

outgrowths and fringing threads. The colon colonies, on the other hand, are much larger, and, as a rule, are darker and do not form threads. This medium is practically solid and the differentiation seems to depend upon the fact that typhoid bacilli form threads in a medium of this acidity when pepton is absent.

"The tube medium contains five grammes of agar, eighty grammes of gelatin, five grammes of sodium chloride, five grammes of Liebig's extract of beef, ten grammes of glucose and 1000 c.c. of distilled water, and should react 1.5% acid, phenolphthalein being the indicator.

"In this semi-solid medium the growth of the typhoid bacillus produces uniform turbidity at 37° C. within eighteen hours. The colon cultures do not give the uniform clouding and present several appearances, dependent upon differences in the degree of their motility, and upon their power to produce gas in the medium.

"The usual method of making the test is to take enough of the specimen of feces, that is, from one to several loopfuls and transfer it to a tube containing broth, making the broth fairly cloudy. From this emulsion five or six plates are usually made by transferring one to five loopfuls of the emulsion to tubes containing the melted plate medium, and then pouring the contents of these tubes into Petri dishes. These dishes, after the medium has hardened, are placed in an incubator at 37° C. and allowed to remain for eighteen to twenty-four hours, when they are ready for examination. If typical colonies with fringing threads and outgrowths are found, the tube medium is inoculated from them and placed in the incubator at 37° C. for eighteen hours. If these tubes then present the characteristic clouding, our experience indicates that the diagnosis of typhoid may safely be made; for the bacillus of typhoid alone, of all the organisms occurring in feces investigated during these experiments, has displayed the power of giving rise both to colonies with fringing threads in the plating medium, and the uniform clouding in the tube medium, when exposed to a temperature of 37° C.

"A diagnosis may thus be made in thirty-four to forty-eight hours. If doubt is entertained as to the distinctiveness or value of these characters, the bacillus may be further tested against a dilution of typhoid serum."

Higley believes that the method of Hiss has given slightly better results in his hands than the Widal reaction. It has occurred in a few instances earlier by several days. The method is more difficult than the cultural examination of the blood. It remains to be seen if it is in any way superior to it, but this does not detract from its value as a link in the chain of diagnostic evidence.

It is doubtful if the bacillus typhosus occurs in the urine sufficiently early to be of material aid in the early diagnosis. In a few isolated cases they have been found as early as the sixth day, but this is very rare. Later they may occur in such enormous numbers as to cause a peculiar shimmer when the urine is shaken.

What has been said of the urine applies even more forcibly to the expectoration, sweat and expired air. That the first may contain the bacillus of Eberth, early in the disease, is not to be denied; but this occurs most often in typho-pneumonia, which is a rare early complication. The elimination of the bacilli in the sweat, tears and expired air is too infrequent to entitle them to diagnostic importance.

The method of Moore acts upon the combined principles of the lysogenic action of the colon serum and the motility of the typhoid organism. In one arm of a W-shaped tube containing bouillon, to which has been added the serum obtained from a rabbit immunized to the colon bacillus, is planted a loopful of the culture from which it is desired to obtain the bacillus typhosus, uncontaminated. The serum causes the Gruber reaction to occur with the colon bacilli and they are agglutinated and precipitated. The typhoid bacilli emigrate and may be obtained in pure culture in the other arm of the tube.

Still another method is that of Biffi, who also utilizes the agglutinating serum of the bacterium coli. Contrary to Cambier, he found that the colon bacillus would pass through an earthen filter quite as readily as the bacillus typhosus. He accordingly first introduces the substance to be examined into bouillon, to which has been added a serum which will agglutinate all the varieties of the colon bacilli. This is prepared according to the

method of Pfeiffer for preparing typhoid agglutinating serum. The rabbit which is to furnish the serum should be injected with all the varieties of the colon bacilli; so that he shall be equally immune to all the varieties, and his serum able to agglutinate any species of the colon bacilli, which may be present in the substance to be examined. This serum should be tested as to its agglutinating power and a quantity added to the bouillon proportional to its agglutinating ability.

The foregoing has considered the general data for diagnosis and has indicated their application in a few instances. The specific differences, which exist between typhoid fever and the diseases which may resemble it, must now be considered.

During the developmental period of the acute exanthemata, they may present symptoms which will render difficult the differential diagnosis. This is especially true of measles, scarlet fever, variola and typhus. The knowledge of exposure to any one of these diseases will of course aid materially, but the most reliance can be placed upon the initial symptoms. Perhaps the earliest manifestation of all the eruptive diseases occurs in the pharyngeal mucous membrane; such involvement is very rare in typhoid fever. The coryza and conjunctivitis of measles, the angina of scarlet fever, and the initial backache of smallpox are all in contradistinction to the onset of typhoid. Variola presents in addition an initial rash, which may be as diffuse and vivid as a true scarlatina. A careful observation of the wrists and hair line for shotty papules will usually prevent error.

Confounded and associated under the same name until the middle of the nineteenth century, it is not surprising that, even at the present time, some difficulty may exist in making an early and accurate diagnosis between typhus and typhoid fevers. Prior to the appearance of the eruption it may be almost impossible. The uneventful period of incubation, followed by a chill and an abrupt and rapid rise of temperature; the extreme rapidity of the pulse; the early vomiting and extreme prostration of typhus are in sharp contrast to the step-like gradations of temperature, slowness of the pulse, and absence of early vomiting and prostration, of typhoid fever. Proportional to the rapid

rise and severity of the fever are the profound disturbances referable to the derangement of the nervous system which occur earlier and with greater severity than in typhoid.

Not infrequently, typhoid patients continue on duty during the first ten days of the disease, and delirium and coma do not occur until late. In typhus, on the other hand, they are prostrated at the very onset of the disease, and delirium, stupor and coma may rapidly succeed one another.

The blood findings of the two diseases present marked differences; typhus showing a moderate leucocytosis, while in typhoid, an actual diminution of the white cells occurs. Typhoid presents in the great majority of cases the specific bacillus before the expiration of the first seven days. Thus far no organisms have been found in the blood of typhus patients. Later typhoid blood shows the Widal reaction which does not occur with typhus serum.

Far more important and readier of demonstration are the skin eruptions of the two diseases. That of typhus occurs earlier and in typical cases presents such marked differences that the differentiation is easy for an observer of experience. It should be mentioned in this connection, however, that typhus cases do occur in which it is very imperfectly developed or entirely absent. The exanthem of typhus is distributed with uniformity over the trunk and limbs. It is neither well defined nor sharply limited. It is macular, hemorrhagic and distinctly petechial. It appears in a single crop, a second eruption being practically unknown. It has a dusky red, coppery hue, and appears as if beneath the surface of the skin. The eruption of typhoid, on the other hand, usually involves the trunk alone. It is sharply defined, papular and purely hyperaemic. It appears in crops, is bright pinkish-red and is slightly elevated above the surface of the skin.

The face of typhoid fever early exhibits bright eyes and slightly flushed cheeks, later a dull and apathetic countenance. Typhus, on the contrary, presents a swollen, livid red appearance with injected conjunctivae, contracted pupils and an agitated expression.

The disease which may occasion the greatest difficulty in early differentiation is acute miliary tuberculosis. Many cases

are under observation for weeks before the diagnostician can arrive at a conclusion, and then perhaps only after the recovery or death of the patient. Both have this in common, that the manifestations of each are due to the action of similarly acting toxins. The initial malaise, headache, anorexia and irregularity of the bowels is present in both. Each presents enlargement of the spleen but it occurs earlier and more markedly in typhoid. Both present the Ehrlich diazo-reaction and febrile albuminuria. The reddish spots which occur on the abdomen in miliary tuberculosis may cause confusion. They do not appear in crops and are much less abundant than the roseola of typhoid. Profuse sweating occurs much more often in miliary tuberculosis. An important difference occurs in the temperature-pulse curve of the two diseases, the marked irregularity of temperature, with a proportionately rapid pulse, of acute phthisis being quite the opposite of the steady ascent and comparatively slow pulse of typhoid. Acute phthisis presents Kernig's sign; typhoid, never. Dicrotism is rare in miliary tuberculosis. There may be, though unusually, a leucocytosis in acute tuberculosis, and the bacillus tuberculosis has been found in the blood of a few cases. The absence of leucocytosis would not necessarily decide in favor of typhoid; but the discovery of the bacillus of Eberth in the blood, or the occurrence of the Widal reaction, would. The relative increase in the large mononuclear leucocytes found in typhoid does not occur in acute tuberculosis. In the minority of cases the eye-grounds show choroidal tubercles. This is a decisive condition when present. Tubercle bacilli are rarely found in the sputum of an acute tuberculosis and the lung findings may be exactly the same at the beginning of both diseases. There is, however, a greater tendency to respiratory frequency and slight cyanosis in miliary tuberculosis. Curschmann considers acute pulmonary emphysema "an especially decisive objective sign" never occurring "as the result of typhoid bronchitis."

In peritoneal tuberculosis, the persistent abdominal pain and physical signs of effusion will make the diagnosis. Very early a decision will rest upon the physical findings indicative of tuberculosis of other organs.

When the tubercular meningitis accompanies the general process, the diagnosis is rendered somewhat easier. The sudden onset with a convulsion or severe headache and high fever; the agonizing pain; projectile vomiting; hydrocephalic cry and contracted pupils go to make up a picture widely different from that of typhoid. The pulse of basilar meningitis is at first small and rapid. Subsequently it is as slow as in typhoid, but is irregular and rarely dicrotic. Quincke's lumbar puncture should never be omitted in doubtful cases. If the tubercle bacilli be present, they will be discovered on centrifugalization of the spinal fluid, and will of course determine the diagnosis.

Cerebro-spinal meningitis, however, is not so readily differentiated from those cases of typhoid ushered in by headache, photophobia, delirium, reaction of the head, twitching of the muscles and even convulsions. It is easy to make a decision when an epidemic of one or the other is prevailing, but it is in sporadic cases that the chief difficulty lies. The irregular and variable temperature, the marked increase in the polynuclear leucocytes, and the profound psychical disturbances have no great resemblance to typhoid. The cutaneous symptoms of the two diseases are very different. Herpes occurs with great frequency in cerebro-spinal meningitis but almost never in typhoid. The rash of the first is petechial and is sometimes distributed over the entire skin. That of the latter is hyperaemic and usually limited to the trunk.

The examination of the fluid obtained by lumbar puncture for the diplococcus intracellularis meningitidis of Weichselbaum is the most reliable method of diagnosis. Blood cultures should also be made to determine the presence of the bacillus of Eberth and, with the newer bacteriological methods, will prove of great value.

Meningitis or cerebral abscess from ear disease may sometimes resemble typhoid. The history of sudden cessation of a chronic ear discharge, followed by a rise of temperature, nausea, vomiting and the symptoms of an acute septic infection engrafted on an existing chronic saprogenic suppuration, would certainly point to a purulent meningitis. The careful examination of the mastoid will sometimes render a decision.

Irregular forms of malarial fever, particularly when due to infection with the aestivo-autumnal parasite, may closely resemble typhoid fever. The onset of typhoid differs from that of remittent fever, in that that of the former is gradual and progressive, with slight chilly sensations and step-like gradations of temperature which rarely reach 40° C. before the fourth day; while the onset of remittent fever is generally intermittent, with severe chills and irregular remissions of temperature which may reach 40° C. in twenty-four hours or less. The temperature of malarial fever disappears under the use of quinine, while that of typhoid is not influenced by it. The grayish color of the face, the sub-icteric sclera, and the anxious, restless expression of remittent fever are all quite the opposite of the facies of typhoid, which early presents flushed cheeks, clear sclera, and an alert but not anxious countenance. Herpes are common in aestivo-autumnal fever but rare in typhoid. Early delirium is rare in typhoid but when occurring is persistent and variable only in degree. The delirium of remittent fever, on the contrary, may come on in the early days, is recurrent and changes with the exacerbations of temperature and other symptoms.

An increase of the lymphocytes to 40% or over, without any increase in the large mononuclears, points to typhoid as against malarial fever. An increase in the large mononuclears to 12% or upwards, especially during the remissions of temperature, indicates malaria rather than typhoid. The presence of myelocytes in any such number as from one to five per cent. indicates malaria rather than typhoid. A high degree of anaemia is more common in malaria. A very great reduction in the total leucocyte count is more frequently met with in malaria than in typhoid fever; while the proportion of white to red corpuscles in malaria is not infrequently less than one to two thousand, which is rare in typhoid fever.

Finally, it is to be noted, that cases have been reported in which typhoid fever is superimposed upon a malarial infection; and that, in these cases, the blood not only contains the bodies of Laveran but also the typhoid bacillus. Fortunately such an occurrence is rare, at least it is rarely recognized; but the knowl-

edge that such double infections do occur will sometimes call for more careful clinical and bacteriological examination.

Remittent fever presents no typical exanthem and the urticaria, which occurs not uncommonly, is very different from the roseola of typhoid. The early anaemia of aestivo-autumnal fever is not found in typhoid. The blood in the former shows leucocytosis, without diminution in the eosinophiles; that of the latter, no leucocytosis, and marked diminution of the eosinophiles. Further, typhoid blood shows no malarial parasites or pigmented leucocytes, but, on the contrary, the typhoid bacilli and the Widal reaction.

Plague may occasionally be mistaken for typhoid fever but the reverse will very rarely happen. The history of exposure to plague may be obtainable, though not commonly. The period of incubation of plague is much shorter than that of typhoid, nine days being the extreme limit. The prodromes may be entirely absent or at least of such mild character as to be unnoticed by the patient himself. Occasionally, they may exactly duplicate those of typhoid, but pain and stiffness in the joints, and tenderness in the groins or axillae will be present also in the glandular type. The stage of invasion with chills, rigors or sensations of heat is in sharp contrast to typhoid fever. In *pestis siderans*, the overwhelmingly sudden onset, with rapidly succeeding delirium, vomiting, hematemesis, hematuria, melaena, coma, collapse and death, has no parallel in typhoid fever. The presence of the *bacillus pestis* in the blood and the reaction of the serum to Pfeiffer's phenomenon are final distinguishing points from typhoid.

Influenza of the gastro-intestinal form may be readily mistaken for typhoid. The abrupt onset, early prostration and multiplicity of symptoms found in typical cases of influenza are very different from the gradual onset of typhoid. The absence of splenic enlargement and the typical roseola in influenza should also be noted. In those typhoid cases in which the nervous element preponderates, examination of the blood may be necessary to make a diagnosis. The presence of an epidemic, the contagious nature of the affection, and the presence of Pfeiffer's organism all point to influenza.

Cases of typhoid presenting marked pulmonary symptoms at the onset may readily be confounded with lobar pneumonia. On the other hand, cases of pneumonia with insidious onset may be mistaken for typhoid fever. This is particularly true of the so-called senile pneumonias, and also of those cases in which the pneumonic process commences in the center of the lung. Osler says: "Nervous symptoms are more frequent in pneumonia than in typhoid, and from the onset may so dominate, that the local lesion is entirely overlooked." The absence of leucocytosis in typhoid, and the presence of Eberth's bacillus in the blood and the dejections are of great differential value. The presence of the Widal reaction will, of course, be decisive. If the bacillus typhosus be found, the case may be considered pneumo-typhoid. It should be mentioned in this connection that there occur, not infrequently, cases in which a diplococcus pneumoniae is engrafted upon typhoid. It is not to these cases that the term pneumo-typhoid is applied, but to those whose manifestations depend upon the bacillus of Eberth alone.

Pyæmia and other septic processes may sometimes require differentiation from typhoid fever. It is in such cases that the examination of the blood, with the view of determining the presence of Eberth's bacillus and the Widal reaction, and the absence of leucocytosis in typhoid, will prove of great value. In differentiating typhoid from puerperal septicaemia, the fact, that pregnant women ill of typhoid usually abort, may sometimes prevent error. The appearance of the roseola and the serum reaction will end all doubt in the matter.

Another pyæmic process which may occasion great difficulty is malignant endocarditis. Both diseases present enlargement of the spleen, abdominal tenderness and diarrhœa; each shows delirium, stupor and progressive exhaustion. If the heart was previously intact, symptoms referable to a cardiac lesion would be almost pathognomonic, as ulcerative endocarditis complicating typhoid usually occurs very late in the disease, at a time when the diagnosis has already been made. The temperature of ulcerative endocarditis is less regular in type than typhoid, and chills and sweats are far more common. Leucocytosis is marked in malignant endocarditis but is absent in typhoid unless inflamma-

tory complications occur. Furthermore, cardiac distress occurring in the course of typhoid is usually devoid of the extreme oppression and shortness of breath of endocarditis.

Infectious osteomyelitis, the "typhe epiphysaire" of Chassaignac, may simulate typhoid. The examination of the epiphyseal regions of the long medullated bones, and the inspection of the extremities for oedema, livid redness, and points of circumscribed tenderness will yield valuable information. Another diagnostic point is the presence of leucocytosis and the absence of the serum reaction and the specific bacilli from the blood, in osteomyelitis.

As has been previously pointed out, Malta fever may very closely resemble typhoid. The temperature curves of the two diseases may be almost identical, and both give rise to headache, insomnia, and anorexia. The presence of the micrococcus *Melitensis* in the blood, and the serum reaction with this germ would be diagnostic of Malta fever. Probably the micrococcus is present in all the dejections. It has been isolated from the urine and blood repeatedly. Sweating and violent joint pain are common and early symptoms in nearly all cases of Malta fever. Joint pain may occur early in typhoid also, but rarely with such severity as mentioned above.

Relapsing fever, at the onset or at the beginning of an epidemic, may be mistaken for an anomalous typhoid. The temperature of *febris recurrens* nearly always rises suddenly at the onset and remains in the neighborhood of 40° C. from three to seven days, when it suddenly falls by crisis. High initial temperatures are rare in typhoid, and a fall by crisis practically unknown. The presence of the spirillum of Obermeier in the blood of relapsing fever, and the bacillus of Eberth in that of typhoid, together with the rarity of relapsing fever, all aid in the diagnosis.

There are times when trichiniasis with predominant gastro-enteric symptoms may closely simulate typhoid fever. Distinguishing points are the presence of vomiting, oedema of the face and eyelids, and extreme myositis in trichiniasis. Trichiniasis rarely presents the characteristic typhoid roseola or the enlargement of the spleen. The flexor contractures of the arms and legs, the painful swelling and tension of the muscles, the profuse

sweating and itching of the skin, all make a much different picture from typhoid. The marked leucocytosis, especially the extraordinary increase in the eosinophiles, is in strong contrast to typhoid. The examination of a portion of the pectoral muscles will render final decision.

"Trichinosis and typhoid fever have been frequently associated, but most commonly the trichinosis has been in the patient and the typhoid fever in the mind of the physician. The association in the patient of these two diseases appears to be exceedingly rare." There are only two reported cases to be found in the literature of the subject and this extreme rarity would almost exclude such a condition from the diagnosis, but might, in some cases, require an examination both of the blood and the muscle section.

Weil's disease with marked gastro-intestinal symptoms may sometimes simulate typhoid. Its mode of onset, the history of exposure to cold, and the fact that it occurs most often in brewers, butchers and ice plant laborers, are all diagnostic points. The jaundice is severe and early. As has been before pointed out, this occurs but rarely in typhoid. The temperature is high and remains so from the beginning of the disease. There is usually enlargement of the liver and subcutaneous oedema over the hepatic area. The blood may contain the *bacillus proteus fluorescens*, which is in marked contrast to the *bacillus* of Eberth,

Very mild cases of typhoid are apt to be diagnosed simple continued fever, in the early stages especially. The examination of the blood for Eberth's *bacillus* and the Widal reaction will settle the diagnosis.

During an epidemic of typhoid fever, catarrhal enteritis, especially in children, may give rise to symptoms like a mild or abortive attack of enteric fever. The absence of splenic enlargement, the rose spots and the Widal reaction will usually determine the disease.

Papular syphilides may resemble the typhoid roseola. Usually they are easily differentiated, but Curschmann speaks of a case in which not only the eruption but also the general symptoms closely simulated typhoid. On the whole, a papular syphilide is of a darker and more coppery hue and more generally distributed.

In these cases the history of a preceding initial lesion may aid materially.

Acute glanders with marked gastro-intestinal symptoms may be suggestive of typhoid. However, the characteristic rash and the presence of the bacillus mallei will make a diagnosis. The use of mallein for diagnostic purposes is also of value.

Cases of prolonged appendicitis with slow onset will present differences which require careful investigation to be discovered. The pulse will be higher in proportion to the fever, and there will be much smaller remissions of temperature, and rarely roseola or the diazo-reaction. There is marked leucocytosis.

Weiss, in his admirable paper read before the American Medical Association at the Chicago Meeting in 1900, detailed a method for the staining of blood to determine the presence of suppuration in the body. The stain he used is as follows:

Iodi sublim.....	1.0
Kali iodati	3.0
Aqua destill	200.0
Gummi arab. q. s. ad consistentiam syruposam.	

A drop of blood taken from the lobe of the ear is carefully pressed between two cover glasses so as to get as thin a smear as possible. This is air dried or fixed, after which a drop of the staining solution is then added to the slide, and the specimen is then ready for examination with the microscope. Blood from a perfectly healthy individual shows a dark yellowish staining of the red corpuscles. The nuclei of the white corpuscles take on a lemon yellow colored very glossy appearance, while the body of the cell is a slightly darker yellow. Normal blood also contains brown granules (extracellular glycogen). The blood gives an altogether different reaction if suppuration be present. There is a great increase of extracellular glycogen, as shown by the large numbers of dark brown granules present in the stained blood. The leucocytes assume a brownish hue, varying in intensity from reddish brown to dark yellow. The polynuclear neutrophiles are almost exclusively concerned in this reaction, as it never appears in the eosinophiles.

The value of this method in eliminating suppurative appen-

dicitis from the diagnosis is great. It is easy of application and in the hands of the author has proven very satisfactory.

An affection whose clinical manifestations may be identical with those of typhoid is paratyphoid fever. Since 1896, when Archard and Bensaude made their first report, eighty-four cases have been recorded; and, without doubt, many, which hitherto have passed as true typhoid, but which have presented no Widal reaction, except in low dilution, are to be classed under this head. The symptoms during the period of incubation are in most respects identical in the two diseases, headache, malaise, anorexia, irregularity of the bowels, rose-spots, enlargement of the spleen and a gradually ascending temperature being the rule. Epistaxis has been noted in a number of instances, and the diazo-reaction of Ehrlich may be given by the urine. In uncomplicated cases the blood shows no leucocytosis. On the whole, the paratyphoid is milder and rather shorter than true typhoid; but in the early stages a differential diagnosis may be almost impossible. In low dilutions of the serum, even the Widal reaction occurs positively.

The knowledge which we now possess in regard to this disease has been the result largely of the practice of making blood cultures, and this still remains the surest method of diagnosing the disease. Two species of paratyphoid bacilli are recognized. Buxton classifies them as the alpha and beta paratyphoids. The alpha produces less gas in glucose media and resembles the typhoid in its action on milk. It differs from the beta paratyphoid in that the acidity on litmus milk is persistent, while that of the beta paratyphoid is finally changed to alkalinity.

Both of the paratyphoid organisms present Pfeiffer's phenomenon with immune serum. As Pratt has clearly pointed out, the blood should be tested with both species of the paratyphoid bacilli whenever there is any doubt about the diagnosis. As an example of this, he quotes a case in which the serum gave a negative reaction with the alpha paratyphoid in 1 to 10 dilution, but completely clumped the beta paratyphoid in as high a dilution as 1 to 500. There may possibly be cases in which typhoid and paratyphoid coexist. At least it would seem so from some of the recent bacteriological findings. Pratt cites an instance in

which "Bain, working in Dr. F. C. Shattuck's wards at the Massachusetts Hospital, found a case of typhoid fever, the blood of which agglutinated the bacillus paratyphoid immediately and completely in dilution of 1 to 10. In higher dilution up to 1 to 200 there was clumping without loss of motility. There was no reaction with the typhoid bacillus in dilution of 1 to 10. A culture from the blood, however, yielded a pure abundant growth of the bacillus typhosus. The case died. Unfortunately no autopsy was held." Everything taken into consideration, the surest method of diagnosing paratyphoid from true typhoid lies in the cultivation of the bacillus from the blood of the suspected case.

There are times when the medical officer is called upon to make what might be called "a sanitary diagnosis," and to determine the presence or absence of typhoid fever. The writer refers to those cases in which epidemics of disease occur, *e. g.*, during the Spanish American War, and boards of officers are called upon to decide as to the nature of the infection. Under such circumstances, they would be required to make the diagnosis of the disease in its earliest stages but very rarely; as in the great majority of instances, cases in all stages could be seen, and by the averaging of the signs and symptoms in the various cases, and making close investigation into the food and water supplies, and the methods employed in the disposal of refuse, a diagnosis could be accurately arrived at.

CONCLUSIONS.

(1.) There is no single symptom on which alone an early diagnosis of typhoid fever can be made. It is only by careful consideration of the symptom-complex that a clinical diagnosis can be arrived at.

(2.) The most trustworthy, as well as the earliest, sign of typhoid fever is the presence in the circulating blood of the bacillus of Eberth.

(3.) The demonstration of the bacillus of Eberth in the blood is not beyond any fairly well equipped laboratory.

(4.) The bacillus of Eberth is found in the feces later than in the blood but with comparative ease. The presence of the bacillus typhosus in the feces is of great value as a corroborative sign.

(5.) The presence of the bacillus typhosus in the rose-spots is a trustworthy sign, but has no advantages over examination of the blood from other localities.

(6.) The serum reaction of Widal is seldom demonstrable during the earliest stages of typhoid fever. It is of value only in the higher dilutions.

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REPORT OF A CASE OF MALARIAL SCIATICA

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THE increase in our tropical service gives to the study of malaria, in all of its regular and irregular manifestations, an added interest to those of us who are destined to fight the disease in its native haunts. I venture to present a report of the following case, which came under my care at Hong Kong, as having some features rather out of the ordinary.

P. F., U.S.N., aged 35, native of the United States. Family history negative. Personal history negative. Habitual use of tobacco and alcohol to a moderate degree. Patient has been on duty in the Philippines for several months, during which time he has enjoyed his customary health except for an occasional attack of cephalalgia and facial neuralgia, from which he found relief by moderate doses of quinine. No history of typical malarial attacks obtainable.

On January 27 reported sick, complaining of severe pain over the course of the left great sciatic nerve, of greatest intensity immediately below its exit from the pelvis. Temperature, pulse and respiration normal; bowels regular; no history or evidence of traumatism. The disability and subjunctive symptoms characteristic of acute sciatica.

Examination elicited exquisite tenderness over the course of the nerve, but was otherwise negative. Patient was relieved from duty, given calomel to be followed by a saline, phenacetin, and put to bed with local application of counter irritation and hot water bottles to the area of pain.

January 28. Condition the same. From the history of neuralgia relieved by quinine, the suspicion that malaria might be the etiological factor in present condition, was aroused. A blood

Civil Hospital at Hong Kong, who had kindly extended to me their laboratory facilities, and by myself.

The presence of quartan parasites was clearly demonstrated. With this evidence of the cause of the trouble, I decided to attack the disease with its specific enemy, locally as well as generally. The patient was put on full doses of quinine by mouth and injections into the sheath of the nerve. For want of a more soluble preparation, thirty minims of a hot saturated solution of the bisulphate was used, and the injection made immediately below the gluteal fold. That the needle reached the sheath of the nerve was evident from a brief paroxysm of pain extending to the toes.

Twelve hours later the pain and tenderness were slightly diminished, and the injection was repeated.

Twenty-four hours later the improvement in his condition was very marked and a third injection was given. At each of the injections a brief paroxysm of pain extending to the toes, was observed. From this time the injections were discontinued. The pain and disability rapidly disappeared and the patient was restored to duty, well, on February 2. The administration of quinine by mouth was continued at intervals during the remainder of the patient's tour of duty in the tropics, with no return of the symptoms above, or other evidence of malaria.

The use of quinine, by injection directly into the sheath of an affected nerve, was an original experiment, so far as I have been able to determine. The results in this case were so satisfactory that I shall be glad to have another opportunity to try it.

AN EPIDEMIC OF TYPHOID IN THE SWEDISH ARMY.

IN 1903 twenty-seven soldiers of the Gottland Artillery Corps (D. Fischer, *Tidskrift i Militar Halsorvard*) were taken with typhoid fever and four (19.8%) died. The cause of the epidemic was found in the drinking water that was brought through wooden tubes in which were found pieces of cloth, bones, potatoes, rat's skin, etc. The water was not clear but had no disagreeable odor or taste, although it contained nitrous anhydride and chlorine.—HANS DALE.

THE UNITED STATES ARMY GENERAL HOSPITAL
AT THE PRESIDIO, OF SAN FRANCISCO,
CALIFORNIA, 1901-1902.

By COLONEL ALFRED C. GIRARD,
ASSISTANT SURGEON GENERAL IN THE UNITED STATES ARMY.

Part 3.

DISPOSITION OF PATIENTS.

ON July 1st, 1901, there were remaining in the Hospital 140 regulars, 72 volunteers, 29 discharged soldiers and civilians, and two general prisoners. Between July 1, 1901, and June 30, 1902, there were admitted to the Hospital 3910 regulars, 598 discharged soldiers and civilians, 15 volunteers and 5 general prisoners; and during the same period there were discharged from the Hospital 3629 regulars, 87 volunteers, 561 discharged soldiers and civilians, and 6 general prisoners.

The soldiers of the regular establishment discharged from the Hospital were either returned to duty, transferred to other hospitals or discharged the service on Surgeon's Certificate of Disability.

There were returned to duty 3535, transferred to other hospitals 503, and discharged on certificates of disability 401. Of those returned to duty a considerable part were not able for duty in the Tropics, nor for full duty in the United States, and such men were sent to convalescent companies at the Presidio of San Francisco, Angel Island, Cal., and Benicia Barracks, Cal. There were also sent to those companies many men who were able for full duty, but whose organizations were not in the United States. Soldiers discharged from the Hospital with more than three months to serve were sent to join their companies, provided their companies were in the United States.

Of those transferred to other hospitals, there were sent to the Army General Hospital, Fort Bayard, New Mexico, 147; to

the Government Insane Asylum, Washington, D.C., 130; to the Army and Navy General Hospital, Hot Springs, Ark., 81; to Fort Logan, Colorado, 109; to Benicia Barracks, Cal., 17, and to the Post Hospital, Presidio, San Francisco, Cal., 19.

Cases transferred to the Government Insane Asylum: This unfortunate class of patients was not disposed of until after careful observation on the part of the Ward Officer, supplemented by that of a Board of Medical Officers, of which the Superintendent of Medical Wards was the senior member. A soldier having been adjudged insane, certificates of disability were prepared to accompany him to the asylum.

Cases transferred to the General Hospital at Fort Bayard, New Mexico: Practically all of these men were suffering from pulmonary tuberculosis, and in a very large proportion of the cases diagnosis was rendered conclusive by the finding of the bacillus tuberculosis in the sputum.

To guard against transferring patients who had not the disease an order was issued requiring that all suspected cases should have their sputa examined for six consecutive days, and their temperatures taken four times daily for the same period. Cases with clear physical signs and symptoms were transferred, though the bacillus was not found.

Resort to the use of tuberculin as a means of diagnosis in doubtful cases was not made, nor was the x-ray used for that purpose. Notwithstanding the difficulty of diagnosis in some incipient cases, it is believed very few mistakes were made. A considerable proportion of the cases transferred to this Hospital from the Philippines with the diagnosis of pulmonary tuberculosis, have shown no physical signs nor symptoms of the disease after arrival here. It is not improbable that some such cases were in the incipient stage in the Philippines and that they were cured by the sea voyage home. Patients of this class were returned to duty after careful observation had resulted in non-confirmation of the diagnosis.

Of the cases sent to the General Hospital at Hot Springs, Arkansas, nearly all were transferred because of chronic rheumatism. A much smaller proportion were suffering from malarial

cachexia and gastro-intestinal disorders than was true of those transferred in the year ending June 30, 1901. Soldiers arriving here as patients from the Philippines with the diagnosis of rheumatism and a history indicating long duration of the disease were, as a rule, sent to Hot Springs after a comparatively short stay, experience having taught that such cases do poorly in this climate.

The transfer of 109 cases to Fort Logan was made at a time when it was necessary to make room for incoming patients. These men were, for the most part, convalescing from intestinal diseases, principally dysentery. Care was taken to exclude from among them such cases as might be expected to do better at other places.

CERTIFICATES OF DISABILITY.

As during the last year, so in this, the discharge of soldiers on certificates of disability has been an important work of the Hospital. 401 such discharges were made as follows:

1901.	
July.....	26
August.....	100
September.....	38
October.....	40
November.....	16
December.....	20
1902.	
January.....	33
February.....	10
March.....	30
April.....	40
May.....	27
June.....	21
Total	401

The manner of doing this work has been much the same as described in my last report. The Superintendent of Medical Wards has had immediate supervision. It has been his duty to verify the suitability for such disposition of all cases reported for disability discharge by ward officers. The following circulars and instructions relating to the subject have been in force during the year and will serve to indicate fully the routine modus operandi employed:

CERTIFICATES OF DISABILITY.

1. Each ward officer will make a report on the prescribed form to the Executive Officer at 10 A. M. on Monday and Thursday of each week, showing the names of patients who are fit subjects for discharge on Surgeon's Certificate of Disability or transfers to Fort Bayard and to Hot Springs. If there are no cases for such disposition he will so report on the printed form.

2. The following instructions relative to the preparation of Surgeon's Certificates in cases of disability are necessitated, viz.:

a. The surgeons should carefully read the printed instructions on the blanks and comply with them.

b. The first part should give the reason why a soldier is capable of performing the duties of a soldier, and not a clinical history. The words, "which disabled him," etc., which are usually inserted, are unnecessary.

c. An "Opinion" as to "Cause" of disability is required. This does not mean legal evidence, but an opinion formed from questioning the patient and weighing his answers by other information obtainable, in the same manner as an opinion would be given in a life insurance or accident policy.

d. The question of whether incurred in line of duty is often difficult to answer.

e. As a general rule, it must be assumed that any disability was incurred in line of duty, unless it is clearly established that it existed prior to enlistment and was not discovered at that time, or was the result of the soldier's own unlawful act. Even then an aggravation due to the service resulting in disability would entitle the soldier to a certificate, "in line of duty."

f. A disability contracted while on temporary absence such as a pass, would be in line of duty, while, if contracted on leave or furlough, is not in line of duty.

g. Careful attention should be paid to the degree of disability, and liberality may be exercised, as the degree in case of pension is fixed by the pension boards and the opinion of the surgeon is not final.

h. The certificates must be in the surgeon's own hand-writing and should be written as legibly as possible.

4. In making recommendations for discharge of soldiers^s for disability, and in the preparation of the necessary certificates, Medical Officers will be governed by the following instructions:

a. Form No. 51, properly filled in, together with form No. 103, in the latter of which will be written the verbatim certificate that the Medical Officer proposes to make, will be sent with the clinical history of the case to the Superintendent of Medical Wards.

b. The Superintendent of Medical Wards will examine the soldier who is recommended for discharge, scrutinize the papers submitted, suggest such changes as he may deem advisable, and see that the wording of the

certificate proposed conforms to the nosological classification of the Manual for the Medical Department of the Army.

c. Upon receipt back of the foregoing named papers, the opinion that the case is suitable for disability discharge being concurred in, the Medical Officer with whom they originate will prepare Surgeon's Certificates of Disability in triplicate, using therefor the official form, which he will then submit (through the Superintendent of Medical Wards) to the Commanding Officer, for his action.

As was noted in my last report. the frequent lack of definite information in transfer slips, descriptive lists and other official papers as to the manner of incurrence of wounds, diseases and injuries resulting in disability, has been a serious obstacle in the way of reaching an intelligent opinion in many cases on the important question of "line of duty." In such cases, when impracticable to obtain information from non-interested sources, it has unfortunately been necessary to rely on the sworn statements of the interested soldiers themselves. The extent to which this difficulty has presented itself may be best appreciated by a glance at the following statement.

Evidence obtainable.	No. discharged.
Interested Soldiers' sworn statement.	183
Old Surgeon's Certificate of Disability.	77
Old S. C. D. and interested soldiers' sworn statement..	52
Old S. C. D. and affidavits of non-interested persons..	18
Transfer slip and soldiers' sworn statement.	22
Finding, Board of Medical Officers.	15
Disability originated in this hospital.	19
Transfer slips alone.	7
Old S. C. D. and transfer slip.	4
Interested soldiers' sworn statement and affidavits of non-interested persons.	4
Total	401

Of these disabilities 310 were incurred in line of duty ; 84 were not incurred in line of duty ; and 7 were multiple disabilities, of which a part was and a part was not incurred in line of duty.

Twenty-three of the soldiers discharged in the month of July, 1901, were volunteers. Of the remaining 378, 35 were recruits. Of these recruits, a large number were found by a Board of Medical Officers convened by Department orders to have had disabili-

ties prior to enlistment. The number of this class discharged for defective vision was considerable, indicating a lack of knowledge of the army standard on the part of civilian physicians, by whom, without exception, these men had been examined for enlistment.

Of the other recruits discharged, the greater part was for disability resulting from eye and ear complications of measles, which complications had supervened while the men were in this Hospital under treatment.

The following tabulated statement, arranged according to the nosological classification of the Medical Manual, shows the cause of discharge for disability from July 1, 1901, to May 31, 1902 :

INFECTIOUS DISEASES :

Tuberculosis of the lungs.....	4
Sarcoma, Amputation for.....	1
Total	5

DISEASES OF THE NERVOUS SYSTEM :

Cephalalgia, Chronic.....	1
Chorea.....	1
Epilepsy.....	12
Hemiplegia.....	5
Opium habit.....	3
Paralysis agitans.....	1
Lateral spinal sclerosis.....	1
Meningitis, Effects of.....	1
Meningomyelitis.....	1
Neurasthenia.....	4
Neuritis.....	3
Vertigo.....	1
Total	34

DISEASES OF THE DIGESTIVE SYSTEM :

Appendicitis, Effects of.....	1
Adenosarcoma of mesentery.....	1
Dental caries.....	18
Hepatic cirrhosis.....	1
Rectal prolapsus.....	1
Total	22

DISEASES OF THE CIRCULATORY SYSTEM:

Cardiac irritability.....	3
Cardiac hypertrophy.....	4
Cardiac dilatation.....	1
Valvular cardiac disease.....	29
Varicose veins.....	2
Total	39

DISEASES OF THE RESPIRATORY ORGANS:

Asthma.....	6
Consolidation of lung, pneumonia.....	1
Pleurisy, Chronic.....	1
Empyema, Pleural.....	4
Total	12

DISEASES OF DUCTLESS GLANDS:

Goitre.....	1
Goitre, Exophthalmic.....	3
Total	4

DISEASES OF GENITO-URINARY ORGANS:

Enuresis.....	1
Nephritis.....	1
Chronic inflammation of spermatic cord.....	1
Retention of testicle.....	1
Total	4

DISEASES OF MUSCLES, BONES AND JOINTS:

Arthritis, Chronic rheumatic.....	2
Arthritis, Rheumatoid.....	1
Arthritis, Syphilitic.....	1
Arthritis, Gonorrheal.....	3
Arthritis, tubercular, Amputation for.....	3
Atrophy, Muscular.....	2
Exostosis.....	1
Floating cartilage in knee joint.....	1
Muscular deficiency.....	1
Osteomyelitis.....	1
Periostitis, Chronic.....	1
Paralysis, left deltoid and trapezius.....	1
Total	20

DISEASES OF INTEGUMENT AND SUBCUTANEOUS CONNECTIVE TISSUE

Bromidrosis.....	1
Corns.....	1
Total	2

DISEASES OF THE EYE:

Atrophy of optic nerve.....	1
Cataract	1
Choroiditis.....	2
Corneal opacity.....	7
Corneal opacity and detached iris, Traumatic.....	1
Glaucoma, Chronic.....	1
Iritis.....	3
Irido-cyclitis	1
Loss of eye, enucleation.....	4
Opacity of vitreous humor.....	2
Optic neuritis.....	2
Neuro-retinitis.....	2
Night blindness.....	1
Refractive errors.....	20
Rupture of sphincter iridis, Traumatic.....	1
Retinitis.....	4
Retino-choroiditis	5
Staphyloma, with prolapsus iridis, Traumatic.....	1
Trachoma, Chronic.....	1
Total,	59

DISEASES OF THE EAR:

Otitis media.....	65
Total	65

ACCIDENTS AND INJURIES:

Amputations	8
Ankylosis.....	1
Bolo wounds and effects.....	5
Dislocations and effects	2
Fractures and effects.....	20
Gunshot wounds and effects	50
Hernia, Ventral.....	4
Hernia, Inguinal (refusing operation).....	19
Incised wound, Effects of.....	1
Insolation, Effects of.....	3
Lameness lower extremities, from contusion.....	1
Laceration of finger.....	1
Pes planus.....	4
Paraplegia, Traumatic.....	2
Rupture of ligaments, knee joint.....	2
Spinal concussion, Effects of.....	1
Synovitis, Traumatic.....	5

Scalds, Effects of	1
Talipes varus, Traumatic.....	1
Total	131
MISCELLANEOUS:	
Nasal catarrh.....	1
Defective mental development.....	1
Total	2
GRAND TOTAL	401

A percentage comparison of some of the causes of discharge of this year and in 1901 may not be without interest:

	PER CENT. OF WHOLE NUMBER DISCHARGED.	
	1901	1902
Infectious diseases.....	4.5	1.22
Diseases of Nervous System.....	9.0	8.47
Diseases of Digestive System.....	11.46	5.47
Circulatory system.....	7.25	9.72
Respiratory organs.....	2.73	3.00
Gunshot wounds and effects.....	26.0	12.21
Injuries and bolo wounds (exclusive of gunshot wounds).....	16.50	18.95
Diseases of the eye.....	6.09	14.46
Diseases of the ear.....	10.3	16.21
Diseases of Muscles, Bones and Joints	2.41	4.96
Genito-urinary organs.....	1.05	1.00

The following is a statement of the rate of discharge for disability per thousand admissions for the respective classes of diseases mentioned:

Infectious diseases.....	4.54
Nervous diseases.....	138.21
Diseases of the Digestive System.....	14.10
Diseases of the Circulatory System.....	413.48
Diseases of the Respiratory Organs.....	54.09
Diseases of the Genito-urinary Organs.....	25.00
Diseases of Muscles, Bones and Joints.....	84.38
Diseases of Integument and Subcutaneous Connective Tissue.....	18.34
Diseases of the Eye.....	621.05
Diseases of the Ear.....	833.33
Accidents and Injuries.....	507.75

Special diseases and wounds:

Pulmonary Tuberculosis.....	23.52
Gunshot wounds	833.33
For all admissions.....	96.90

While this table accurately represents the rate of disability discharge at this Hospital for the causes mentioned, it would be a mistake to believe that it indicates primarily the causes in all cases leading to this rate of discharge; and it would be a still greater error to suppose it to represent even approximately the rate of disability discharge from these causes, for the Army at large. The rate of 96.9 per thousand admissions from all causes appears extraordinarily large only before it is understood that a very large proportion of the soldiers treated here are sent here from the Philippine Islands for the express purpose of being discharged the service, because of the disabling nature of their diseases and wounds.

A good example of this is the large rate of 833.33 per thousand admission for gunshot wounds. Wounded men not permanently disabled are not sent from the Philippines except when their organizations are returning to the United States. On the other hand, the very small rate of 4.54 per thousand admissions of infectious diseases is misleading, unless it is understood that a large percentage of the disability cases coming under Nervous Diseases, Diseases of the Circulatory System, and especially, Diseases of the Eye and Ear, all of which give high rates, were really discharged because of the results of complications or sequelae of infectious diseases.

Nothing could be further from the truth than that 23.52 per thousand admissions for pulmonary tuberculosis represents the disability ratio for this disease, which disease, as would be expected, ultimately causes loss to the service either through death or discharge, of nearly all who contract it. To arrive at anything like accurate knowledge as to the ultimate rate of discharge because of this disease, based on cases admitted to this hospital, it would be necessary to know the subsequent history of the large number of cases transferred to the General Hospital at Fort Bayard, New Mexico.

THE INSANE.

From the nature of this class of patients it is obvious this Hospital can only make final dispositions of some cases. With this object in view, a small detached building, on the eastern

portion of the Hospital grounds, is so fitted up and arranged as to accommodate about fifteen patients and is denominated the Detention or Insanity Ward. It is under the charge of a medical officer and has three Hospital Corps privates on day and two on night duty as attendants. The patients are here kept under observation until their ward surgeon and a Board of three medical officers, of which the ward surgeon is a member; are satisfied as to their mental condition, when those who are considered to be insane are recommended to the Commanding Officer for transfer to the Government Hospital for the Insane, Washington, D.C., while those considered normal, mentally, are returned to duty or discharged as the case may be. The length of time required for this purpose is found to average about four to six weeks, and this period of time is usually quite sufficient for the ward to become filled with new arrivals.

One hundred and fifty-eight cases diagnosed as insane were received during the fiscal year:

Philippine Islands.....	145
Honolulu.....	1
Other sources.....	12

Classified according to status in the service they were as follows:

Regulars.....	139
Volunteers.....	1
Discharged soldiers.....	11
Retired soldiers.....	1
General prisoners.....	4
Civilians.....	2
Total.....	158

Classified as per diagnoses made, the cases were as follows:

Chronic alcoholism.....	2
Dementia.....	14
Dementia, secondary.....	7
Dementia, syphilitic.....	2
Dementia, chronic.....	6
Dementia, post alcoholic.....	6
Dementia, sub-acute.....	1
Dementia, simple.....	2
Dementia, terminal.....	1

Epilepsy, grand mal.....	13
Epilepsy, petit mal.....	4
Epilepsy, traumatic.....	1
Hypochondria.....	3
Insanity, delusional.....	5
Insanity, acute.....	2
Morphiomania.....	3
Monomania.....	1
Mania, acute.....	9
Mania, chronic.....	2
Mental deficiency, congenital.....	6
Melancholia, acute.....	50
Melancholia, chronic.....	13
Paranoia.....	4
Paresis.....	1
Total.....	158

During the year there were received 36 cases diagnosed as insane, in which the diagnoses were not confirmed. It is probably true that most of these cases, if not all, were insane at the time that they were transferred to this Hospital, but the majority of them came from the Philippine Islands, and the voyage home, together with more cheerful surroundings resulted in a disappearance of the abnormal condition. Most of these cases were of the types of insanity in which the prognosis is good, and most of them were, without doubt, due to nostalgia and the depressing influence of campaigning in the tropics. The diagnoses of these cases were as follows:

Chronic alcoholism.....	2
Epilepsy, grand mal.....	5
Morphiomania.....	2
Epilepsy, petit mal.....	1
Mania, acute.....	2
Melancholia, chronic.....	5
Dementia, syphilitic.....	1
Epilepsy, traumatic.....	1
Melancholia, acute.....	13
Dementia, acute.....	2
Paranoia.....	2
Total.....	36

The following dispositions were made of these cases:

Transferred to Government Hospital for the Insane.....	91
Returned to duty.....	31
Discharged on Surgeon's Certificate of Disability..	10
Died.....	1
Deserted.....	2
Left Hospital.....	5
Discharged on expiration of term of service.....	5
Escaped (General prisoner).....	1
Remaining.....	12
Total	<hr/> 158

The etiology of the cases of insanity handled at this Hospital might be considered unique and is of no little interest. This is so from the fact that these cases come almost uniformly from one class of men, soldiers averaging 20 to 50 years of age, who have been subject to peculiar climatic and sociological conditions. Casually considering these cases from the point of view that the soldier is selected for physical and mental soundness, and that he has become insane under circumstances regarded as highly conducive toward such a condition, one might be inclined to attach undue importance to the influence of outward circumstances as the causative agent. On the other hand, when the length of each man's service in the tropics, the average age and the proportion of insanity for the army in the Philippine Islands, together with other circumstances, are considered, it appears that the tropics, nostalgia and other incidents of the service can have no more than a provoking or precipitating effect.

The average age of the patients received at this Hospital from the Philippine Islands, suffering from insanity, is $28\frac{2}{12}$ years, which is about the age of greatest occurrence of insanity in the male adult. The average length of service of patients who become insane is $2\frac{8}{12}$ years, and the average length of their tropical service is about six months, the former of which is above the average of the same for sick or surgical patients, while the latter is markedly below that for all other patients from the Philippine Islands.

The proportion of insanity in civil life is shown to be about one insane to every 300 individuals, while the proportion for the

Army in the Philippine Islands is found to be about one insane to every 500 soldiers. Furthermore it seems proper to allow here that men in the service are under much closer and more continuous surveillance than would be the same individuals in civil life, and hence the cases of milder mental aberration are here invariably taken account of at once, whereas, in civil life, it is probable many such are never brought to a physician's notice.

In order to further demonstrate that the very great majority of these cases of insanity are more or less degenerates and that their insanity is of hereditary origin, a chart has recently been devised, showing craniometrical and cephalometrical measurements, with any noticeable stigmata of degeneracy, for use in this class of cases.

THE NEW SPANISH FIRST AID PACKET.

AS a result of the knowledge acquired in recent wars, remarks Dr. C. I. de Alarcon (*Revista de Sanidad Militar*) the wounds produced by bullets of small calibre may be considered as practically aseptic, and in harmony with the establishment of the principle that asepsis is preferable to antiseptis in the treatment of clean wounds, Spain has adopted a first aid packet which is sterile or aseptic, rather than antiseptic, and in this lead she is followed by Holland.

The new packet as described in official orders, consists of the following :

1st. An outer envelope of impermeable fabric, 12 cm. long and 8 cm. wide. upon which are printed directions. The ends of the packet are rounded. The material is sewn on three sides and the stitching is covered with two coats of rubber varnish.

2nd. An inside envelope of parchment paper.

3rd. Two safety pins, 6 cm. long, wrapped in a bit of waxed paper.

4th. Two compresses, each 10 cm. in length by 7 cm. in width and composed of a piece of absorbent cotton, 5 gm. in weight, between two layers of hydrophilous gauze.

5th. A cotton triangular bandage.

The packets are stored in zinc lined pine boxes, dovetailed, 42 cm. in width by 55 cm. in length, the covers of which are fastened by screws. Each box holds 500 packets.—C. N. BARNEY.

Reprints and Translations.

RECENT SPANISH MILITARY MEDICAL LITERATURE

By LIEUTENANT CHARLES NORTON BARNEY

MEDICAL DEPARTMENT, UNITED STATES ARMY.

OF the 528 pages which constitute Volume XVII of the *Revista de Sanidad Militar*, made up of the 24 semi-monthly numbers issued in 1903, 59 pages (11%) are devoted to circular orders to the Army, on such subjects as the marriage of officers, the uniforms, military orders and decorations, pensions, pay and allowances; 84 pages (16%) are devoted to death notices, the mortality statistics of Madrid, announcements of prize competitions and miscellaneous news items; 227 pages (43%) are occupied by short abstracts and synopses of articles published in the medical press, on subjects not related to military medicine,—for example, “A New Method of Administering Chaulmoogra Oil,” “Primitive Myopathy of the Leyden-Moebius Type,” “Laparotomy in a Case of Tubal Pregnancy,” “The Radiations of Radium,” “Treatment of Syphilis of the Heart,” and “The Chemical Nature of Immunizing Bodies”; 42 pages (8%) are devoted to the 13 abstracts on subjects bearing on military medicine; and 52 pages (10%) are occupied by 7 original articles on non-military subjects, viz.: “Surgery of the Medulla,” “A Case of Burn treated by a New Method,” “Neurasthenia and Psychoses of Nasal Origin,” “Curable Forms of Pulmonary Tuberculosis,” “Hysteria & Aortic Lesions,” “Three Cases of Addison’s Disease,” and “A Case of Fracture of the Skull by the Kick of a Horse.” Out of the 528 pages 64 (12%) are devoted to the 8 original articles on medico-military subjects, viz.: “The New First Aid Packet,” “The Treatment of Syphilis in the Army,” “The Military Hygiene of Dysentery,” “Douche Baths in the Army,” “Advantages and Disadvantages of Compressed Medi-

cines in Field Service," "New Method of Measuring the Depth of Lodged Foreign Bodies by Radioscopy," "Treatment of Wounds in the Various Sanitary Formations during Battle," and "The Baths of Archena in the Treatment of Syphilis in the Army," Several of these articles were presented at the XIV International Medical Congress which was held last year at Madrid.

The "feuilleton" which accompanied the issues from January 1st is a continuation of the article on "Bacteriology in Relation to Hygiene," which began in the issue of October 15, 1902. More recently the subject has been "Notes on Military Hygiene."

THE TREATMENT OF SYPHILIS IN THE ARMY. (*F. G. Delcilo.*)—Of all the chronic infections syphilis is the only one which is not in itself considered as disabling for service, either permanently or temporarily, the person who is suffering from it. In the Spanish army during the years 1891-98 the average ratio of admission to hospital for syphilis was 11 per 1000, with a minimum of 6 per 1000 in 1891 and a maximum of 23 per 1000 in 1893; and out of the 8463 admissions to hospital for this disease during this period, only 46,—that is, only 5 out of every 1000 cases of syphilis—were declared disabled for further service.

The proper treatment of syphilis requires something more than the routine administration of specifics, and these requirements can not well be fulfilled in army life, either in hospital or in barracks.

In the deceitful security that we can cure syphilis by merely giving, first, mercury, and then, iodide, lies the reason why so many tertiary and para-syphilitic manifestations appear in patients who can scarcely remember ever having suffered from any secondaries. The specific treatment must be prolonged through years, and at the same time the patient must lead a hygienic life, avoiding dissipation and excessive fatigue, and getting plenty of fresh air, sleep, and good food. It is generally conceded that during the first year, no matter how many intermissions may occur in the symptoms, the specific treatment should be carried on for at least seven months out of the twelve, and that during the whole period the patient should be subjected to a strictly hygienic regimen.

It is not practicable nor desirable that the syphilitic soldier should pass his entire period of military service in hospital.

At the same time there are very strong objections to his remaining in barracks. In the first place it is bad for the patient. The life in barracks is not as hygienic as is desirable in the treatment of syphilis, and in barracks it is difficult to see that the patient carries out the treatment ordered for him. In the second place, a syphilitic in barracks is a source of danger to his comrades.

Even an attempt to keep the patient in hospital during the active manifestations of his disease and to send him back to barracks in the intervals is dangerous, for contagious lesions may develop at any time and remain undiscovered for long periods.

Here is a case which shows at once the bad effects upon both the patient and his comrades which may result from allowing a syphilitic to remain with his company. The patient, a corporal, acquired a labial chancre by smoking a pipe which belonged to one of his comrades in barracks, a syphilitic sergeant. At a period when he had no active lesions apparent, and was living in barracks and doing duty, he went out one day with his company to some military exercise, which proved to be arduous, and during which he was soaked and chilled by a sudden storm. The fatigue and exposure were the determining causes of a spinal manifestation of his syphilis, which, beginning as an acute myelitis, passed into a chronic state with paralysis of the lower extremities and of the sphincters.

What has already been said indicates the bad effects which the present methods of dealing with these cases have on the individual, on his comrades, and on the nation.

There are objections also to declaring all syphilitics exempt from service. People have purposely acquired ring worm, and have even cut off their fingers, in order to exempt themselves from military service.

The solution of the problem can not be found in prophylactic measures alone. The application of some, or better, all of the measures of prophylaxis will diminish the number of cases of syphilis, but it will never totally do away with the disease. There will always be syphilitics who will have to be dealt with some way or another.

The least objectionable method would be to declare all syphilitics temporarily disabled but conditionally fit for service, to re-examine them after a period of, say, four years, and at such re-examination declare fit for service those who have been cured, permanently exempt those who have become permanently disabled, and hold over for another four years those who are still suffering from the disease in a curable form. The fact that this would necessarily delay marriage until a late period would, in these syphilitic cases, be of advantage to the nation.

To the enlistment of voluntary substitutes, and to all enlistments, syphilis should be an absolute bar.

After preventing the admission of syphilitics to the service the next thing to be done is to try to prevent the acquirement of the disease after enlistment.

Perhaps not very much can be accomplished toward preventing soldiers from acquiring syphilis in sexual intercourse, but something can be done by spreading a knowledge of the dangers of the disease and the means of prophylaxis, by combatting the idea that syphilis is a crime rather than a misfortune, by encouraging men to make known the sources from which they have gotten the disease, and by regulating prostitution. The author reserves this branch of the subject for a later article.

Soldiers should not in any way be punished for acquiring venereal disease, as otherwise they resort to all kinds of devices to conceal the fact that they have syphilis or gonorrhoea, and these concealed and untreated cases spread contagion in barracks as well as outside.

Much can be done to prevent the spread of syphilitic contagion in barracks by searching out the cases at the monthly physical inspections, diagnosing them early, segregating them and treating them.

Treatment of all cases constitutes the most effective method of preventing the spread of this disease.

In this way the syphilitic would be given an opportunity of getting cured, he would fulfill his duty toward his country, he would be in less degree a source of contagion to others, and would practically be prevented from marrying and having children during the existence of his disease.

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BREVET MAJOR GENERAL JOSEPH K. BARNES,
SURGEON GENERAL, U. S. ARMY,—1864-1882.

Editorial Expression.

The Surgeon Generals of the United States Army.

XII. BREVET MAJOR GENERAL JOSEPH K. BARNES,
SURGEON GENERAL OF THE UNITED STATES
ARMY.—1864-1882.

CONSEQUENT upon the relief of Surgeon General Hammond from duty in Washington, Colonel Joseph K. Barnes, Medical Inspector General, was assigned to duty in the War Department as Acting Surgeon General and when General Hammond was dismissed Colonel Barnes was promoted to be Surgeon General.

General Barnes was born in Philadelphia, July 21, 1817 and was the son of Hon. Joseph Barnes who for many years served as President Judge of the District Court of that City. The son received his father's name, distinguished by the addition of the initial "K" the initial being complete in itself and not indicative of a second christian name. He was educated at the Round Hill School at Northampton, Mass. and at Harvard University, from the latter of which however he was obliged to withdraw before graduation on account of illness.

He then entered upon the study of medicine under the direction of Surgeon (afterwards Surgeon General) Thomas Harris of the Navy and received his doctorate from the University of Pennsylvania in 1838. He added still farther to his experience by serving for a year as resident physician at Blockley Hospital and for another year as outdoor physician for the northwestern district of Philadelphia.

He then appeared before an Army Examining Board at that time in session in the city and after a most creditable showing was at once appointed and, on June 15, 1840, commissioned as an As-

sistant Surgeon in the Army, and assigned to duty at the West Point Military Academy.

After five months, during which he became fully familiar with the technical functions of a military medical officer, he was, on November 19, 1840, directed to proceed with a detachment of recruits to Florida then the seat of hostilities with the Seminole and Creek Indians. For the next three years he was stationed at Forts Pleasant, Vose, Hamilton, Noel, Stansberry, Poinsett and Brooke and Key West Barracks, much of the time rendering professional services to two or more posts, owing to the scarcity of medical officers, while he saw much field service,—conspicuously on the expedition of General Harney through the Everglades.

After a three years tour of duty at Fort Jessup, La., he joined the Second Dragoons en route to Corpus Christi to form part of the Army of Invasion then organizing on the Mexican Frontier. His service in the Mexican War was active and distinguished, involving all of the operations of Taylor except the battle of Buena Vista, and much of the later movements of Scott's forces. He was present with Worth's command at the siege and capitulation of Vera Cruz and at the affair of the Madeline river he received the special thanks of Colonel Harney. He was Chief Surgeon of the Cavalry Brigade of the Army of Occupation and participated actively in the battles of Cerro Gordo, Contreras, Cherubusco and Molino del Rey, the storming of Chapultepec and the capture of the City of Mexico, contributing most efficiently to the service of the sick and wounded until recalled to the United States in January, 1848.

During the thirteen years which now elapsed before the opening of the War of the Rebellion, Dr. Barnes had a varied and extensive experience in the widely separated portions of the territory which was becoming amalgamated into the United States of America. In the South he served at Baton Rouge and East Pascagoula, La., Fort Croghan and other posts in Texas; in the central west, at Fort Scott, Fort Leavenworth and Camp Centre—now Fort Riley; on the Pacific Coast at San Francisco; and in the north-west at Forts Vancouver and Cascades and as Medical Director of the Department of Oregon; with intervening tours

of duty at Baltimore and Fort McHenry and at Philadelphia and West Point.

When the shelling of Sumter had announced the onset of the great Rebellion officers were called in from all directions and among them Major Barnes was on June 20, 1861, ordered from his post at Fort Vancouver to the Headquarters of the Army, and during the succeeding ten months served successively as Medical Director of General David Hunter's forces, Medical Director of the Western Department, Medical Director of the Department of Kansas and also in the Department of Mississippi under General Fitz Greene Halleck. On May 2, 1862, he was ordered to report to the Surgeon General in Washington and was assigned to duty as attending surgeon in that city.

While in Washington he gained the good will of Secretary Stanton and formed a friendship with that formidable personage which lasted throughout his administration and was productive of vast results both to the Medical Department and to Major Barnes himself. On February 9, 1863, he was appointed Lieutenant Colonel and Medical Inspector and took station in Washington. A few months later, August 10, 1863, he was further advanced to the grade of Medical Inspector General with the rank of Colonel.

A few weeks later, September 3, 1863, when the unfortunate difficulties between the Secretary of War and the Surgeon General of the Army resulted in the forcible detachment of the latter officer from his office, Colonel Barnes was "empowered to take charge of the Bureau of the Medical Department of the Army, and to perform the duties of the Surgeon General during the absence of that officer," and on the following day he assumed the position of Acting Surgeon General and entered upon one of the longest and most eventful administrations in the history of the Medical Department of the Army. On August 22, 1864, his position was confirmed by his appointment as Surgeon General with the rank of Brigadier General, and on March 13, 1865, he was commissioned Brevet Major General, for faithful and meritorious services during the war.

The long and varied experience of General Barnes in all parts of the United States and in three wars well qualified him

for the management of the corps to the head of which he now succeeded. During the remainder of the War of the Rebellion the affairs of the Surgeon General's office were conducted with the highest efficiency and the transition from war to peace was made without a jar.

He selected as his principal assistant, Major Charles Henry Crane, who continued to maintain that relation until the retirement of General Barnes and who then succeeded him in the office of Surgeon General.

The Secretary of War, Mr. Stanton, having a Surgeon General who was personally acceptable to him now became as friendly as he had hitherto been inimical and for the remainder of his term of office he maintained the greatest interest in the health and hygienic condition of the army, omitting nothing that could conduce to the comfort and welfare of the sick and wounded, as well as to the extension of the facilities and opportunities for the work of the officers of the Medical Department.

To this hearty cooperation of the Secretary with General Barnes is due much of the development of the medical work, such as the vesting of the exclusive control of general hospitals and hospital camps in the Medical Department and the ample recognition of the Medical Corps in the bestowal of brevet commissions at the close of the war, the development of the Army Medical Museum and the Library of the Surgeon General's Office, the compilation of the superb Medical and Surgical History of the War of the Rebellion and many other movements which redounded to the advantage of American military medicine.

General Barnes saw that at the end of the Rebellion the Medical Department retained the same proportion of the several grades as during that conflict and strenuously and successfully opposed all efforts to reduce and cripple its work. During the nineteen years of his administration the high standard of the medical officers was maintained and the corps was firmly consolidated by a lofty esprit de corps into the finest military medical organization history had ever known.

He fostered and developed the Army Medical Library, which was expanded by Colonel Billings under his patronage from a

small accumulation of text books to be the most famous medical library in the country and one of the most extensive in the world. The splendid Index-Catalogue was inaugurated during his administration and the work of medical bibliography thereby incalculably advanced. He supported and directed the issue in 1870 and 1875 respectively of exhaustive Reports upon Barracks and Quarters and upon Hygiene in the Army, which were really descriptions of all the army stations in the country with remarks upon the sanitary conditions prevailing, by the medical officers stationed at each post, the whole edited by Colonel Billings.

Immediately upon assuming office he devoted his attention to continuing the collection of material for the Army Medical Museum and the Medical and Surgical History of the War of the Rebellion, issuing numbers of instructions to medical officers and keeping the importance of the work well before them. Four of the six monumental volumes comprising the series, edited by Majors Otis and Woodward, appeared during his administration and the work upon the others was well advanced at the time of his retirement.

During the years of his active medical practice he displayed qualities of the highest type. "He possessed," said General Crane, "quick perception, sound judgment, and a mind fertile in expedients. His unwearying attention and kindly sympathy in the sick-room, won for him the confidence of his patients, which he ever after retained; especially was this the case with the soldiers of the commands with which he had served; in their devotion and remembrance he found his most satisfactory reward."

It fell to his lot to share in the professional care of two murdered presidents. He was summoned to the bedside of the martyred Lincoln and took part in the unavailing efforts put forth to mitigate the effects of the assassin's bullet; and sixteen years later he was called to take part in the treatment of President Garfield and displayed there the same qualities of devotion, skill and interest which had combined to render the professional work of his earlier service so noteworthy.

General Barnes was a man of fine physique and agreeable personality. He possessed to a high degree the art of command-

ing the confidence and regard of those with whom he was brought into contact. These qualities were of the highest service to his corps in connection with the securing of favorable departmental action and advantageous legislation.

He became an honorary member of numerous important foreign learned societies and held many important positions of trust, both public and private.

He was the first Surgeon General of the Army to be retired by reason of age, the compulsory retirement act of June 30, 1882 finding him already nearly a year beyond the age limit and causing his immediate relinquishment of active service.

For months prior to this event however, he had manifested indications of impaired health, which had been accentuated by his protracted and devoted services in the case of President Garfield, and after his relief from the burdens of official responsibility the renal affection which determined his decease became pronounced and resulted in his death at his home in Washington on April 5, 1883.

EXAMINATIONS FOR THE PUBLIC SERVICES.

THERE are a number of vacancies in all three of the national public services and graduates in medicine desiring appointments to these desirable positions should make application by letter to the Surgeon General of the Army, the Surgeon General of the Navy, or the Surgeon General of the Public Health and Marine Hospital Service at Washington, D.C. respectively, for permission to appear before the boards convened in the several services for the examination of candidates. The army medical service inaugurates this year the system described in the JOURNAL some months since, and a number of boards have been detailed at various convenient points throughout the country to conduct the preliminary examinations, successful competitors in which will be entitled to appointment as contract surgeons and to a six months course under salary at the Army Medical School with the probability of a commission in the army upon graduation. The outcome of this plan will be awaited by the profession with much interest.

Current Literature.

THE PREVENTION OF DISEASE IN ARMIES IN THE FIELD.*

IN an attractively written monograph, bearing evidences of wide reading and profound observation, Major Caldwell takes up the subject, in succinct form, of military hygiene. After an attractive introduction, he discusses (1) diseases of the soldier in the field, (2) administrative matters affecting the health of troops in the field, (3) sanitary measures in the field and (4) the sanitary organization of a field force. The consideration of these subjects is made from a directly personal standpoint and the author's extensive experience is evident in every line. He believes that apart altogether from endemic causes certain conditions attendant on field service are potent factors in the production of diseases; that among disease producing factors soil-pollution occupies a prominent place; that although the existence of water-borne enteric fever is beyond doubt, other factors—notably soil-pollution—are of as powerful a nature as the first named in a like direction; that the best means of water purification are not known with certainty; that as so many cases of so called simple continued fever are undoubtedly enteric fever, and as these unrecognized cases are active agents in the spread of the latter disease, means for carrying out the serum diagnosis should be given as wide a field as possible of general applicability; that the prevention of disease in an army in the field resolves itself largely into the question of the disposal of organic refuse; that the spread of epidemic sickness in the field is largely the result of the presence in field hospitals of patients suffering from forms of communicable disease; that with a few common-sense exceptions, the

**The Prevention of Disease in Armies in the Field.* By Major ROBERT CALDWELL, F.R.C.S., R.A.M.C. 12mo; pp. 182 with 28 illustrations. London. Bailliere, Tindall & Cox, 1904.

excreta of patients in field hospitals should be sterilized; that so far as is consistent with military exigencies, autonomy should be granted to the medical service of the army as regards sick transport; that the study of prevention of disease on service consists in the main, of an intelligent comprehension of the various disease-producing factors which affect the soldier in the field; and finally, that although official sanitary regulations are without doubt not only of high value but also absolutely necessary for the maintenance of efficiency, the actual working out of details under the varying conditions of active service must be left to common-sense, an essential part of the mental equipment of the Army Medical Officer. The book is a valuable one and would form with great advantage a part of the equipment of every medical officer, a fact emphasized by the award to it of the Parkes Memorial Prize for 1904.

EPILEPSY AND ITS TREATMENT.*

THIS extensive volume will be a surprise to many practitioners who have not realized the importance at the present day of epilepsy. Dr. Spratling's experience as Superintendent of the Craig Colony for epileptics has to an exceptional degree qualified him for speaking authoritatively upon a subject which has occupied his time and attention for years. The progress derived from recent study of the affection is well brought out, the work being fully up to date. Among the chapters deserving of especial mention are those devoted to the psychologic and medico-legal aspects, while the different types of seizure, the status epilepticus, the forms of epileptic aura and the sequelae are minutely discussed. Treatment receives full and ample consideration in its general and its special medical and surgical aspects, rendering the book a thoroughly well-rounded and complete treatise upon the important subject to which it is devoted.

**Epilepsy and its Treatment.* By WILLIAM P. SPRATLING, M. D., Octavo volume of 522 pages, illustrated. Philadelphia, New York, London. W. B. Saunders & Company, 1904.

INTERNATIONAL CLINICS.*

THE first volume of the fourteenth series of the International Clinics is noteworthy principally for its resume of the progress of medicine in 1903,—the subject of Medicine proper being reviewed by Dr. David L. Edsall, that of Surgery by Dr. Joseph C. Bloodgood, and Treatment by Dr. A. A. Stevens. Among the interesting special articles may be noted two papers upon Neurasthenia by Doctors Robert T. Edes and George W. McCaskey respectively, while Doctors James J. Walsh and Carl Beck write interestingly of the Early Diagnosis of Pulmonary Tuberculosis and of Angioma and Its Treatment. The volume is a good one and deserves well of the profession.

LEUBE'S MEDICAL DIAGNOSIS.†

THE subject of diagnosis is important enough to justify the preparation of numerous works upon the subject. The Diagnostics of Internal Medicine by Dr. Butler was most favorably commented upon in this department when issued. The same publishers now offer to the profession a work upon diagnosis which has been eminently successful in Germany and which will doubtless prove to be of great assistance to the American practitioner in the treatment of the ailments which come before him from time to time. The book is systematically arranged, beginning with diseases of the vascular system, thence proceeding to troubles of the respiratory organs and affections of the other viscera, and, after treating of maladies of the muscles, closing with a consideration of infectious diseases. The book is thorough and comprehensive and what may have been lacking in the German version is added by the editor of the American edition.

**International Clinics*. Fourteenth series, Volume I. Edited by A. O. J. KELLY, M. D. 8vo.; pages 304. Philadelphia; J. B. Lippincott Co., 1904.

†*Medical Diagnosis; Special Diagnosis of Internal Medicine*. By Dr. WILHELM VON LEUBE. American version edited by JULIUS L. SALINGER, M. D. 8vo; pp. 1058 with 5 colored plates and 74 illustrations; New York and London, D. Appleton & Co., 1904.



The St. Louis Meeting.

THE SCIENTIFIC PROGRAM OF THE THIRTEENTH ANNUAL MEETING.

THE St. Louis meeting promises to be the most successful meeting the Association has ever held. The date of the meeting, October 10th to 15th is a most popular one for many other organizations also and the hotel capacity of the city will be taxed to the utmost, so that *members should not delay in securing reservations* for this occasion at the Inside Inn.

The program, as provided by the Arrangements and Literary Committees is as follows :

The Opening Session will convene on October 10th, at 2:00 o'clock P.M., when the following program will be followed :

Invocation - - - - - By *Rev. Leon Robinson, D. D.*

The State of Missouri. By *Hon. Alexander Monroe Dockery*, Governor of Missouri.

The Louisiana Purchase Exposition. By *Hon. David Rowland Francis* President of the World's Fair.

The Foreign Delegates. By one or more of the representatives of foreign armies.

The Ideal Military Surgeon. Annual Address of the President. By Medical Director *John Cropper Wise*, U. S. Navy.

The music for the opening session will be furnished by the Philippine Constabulary Band of seventy-five pieces.

On Thursday morning, October 11th, at 9 o'clock, the business of the meeting will begin, to be continued upon the succeed-

ing mornings of the week at the same hour by the presentation of the scientific and literary program of which the following is a preliminary outline :

The Relation of the Medical Department to the Health of Armies. By the Enno Sander Prize Essayist.

An abstract of the essay securing first place in the Enno Sander Prize Medal Competition. The competition this year promises to be a very active one and the contest will be participated in by officers of foreign armies as well as of the United States forces.

Further Researches into the Causes which Tend to Bring About Serious Accidents to Divers. By Tenente Colonello Medico Luigi Abbamondi, Royal Italian Navy.

A discussion of the accidents incident to submarine investigation by the representative of the Royal Italian Navy.

The Medical Reserve Corps of the United States Army. By *Major Azel Ames, U.S.V.

The composition of the Medical Staff of the United States Army since 1846. Regular, Volunteer, Militia and Adjunct, the contingent fresh from civil practice always necessarily large and disproportionate. A chief factor of this contingent the Acting Assistant Surgeon. Always of anomalous status his very existence made impossible by the decision of the Judge Advocate General and the attitude of the Secretary of War. Essential to supply his place with a commissioned competently trained officer. Hence to create and train an adequate Corps from the profession in civil life. The defect of the old civil contingent that it lacked knowledge of the special requirements of military service and the sanitary and kindred needs of troops in the field. It could not be competently trained because its personnel was unknown and not to be determined while it lacked commissioned rank and authority—and hence respect. Hence the need of a Corps duly commissioned, and organized from the profession throughout the Union, and made an adjunct of the Army, available on call, maintained at the minimum of expense and the maximum of efficiency, easily mobilized and always under training on the same basis as Medical Officers of the Regular Army and National Guard. To establish the means and standards for this uniform instruction and to keep the military surgery and the Medical Department of the United States Army and its Militia and Adjunct Corps abreast of those of the armies of civilized Europe, a proper Army Medical School, whose existence and cost would be justified by this field of work, the Adjunct or Reserve Medical Corps being instructed and examined by the School by the correspondence methods now so successful in scientific educational institu-

*The asterisk in connection with an officer's name indicates that he is not now in active service as such.

tions. Thus the old unsatisfactory and anomalous position of the "Contract" Surgeon body, swept away. Its place taken by a homogeneous commissioned Corps of competent medical men in civil practice ready to take the field on call or serve as needed in time of peace, viz.: The Medical Reserve Corps of the United States Army. The medical profession in civil practice and its representatives of the Medical Staff of the Army united and in accord, as never heretofore and cordially cooperating. Effective, uniform and competent training through the means of the necessary and much desired Army Medical School to be adequately established and maintained by Congress.

The Principles of the New Austrian Sanitary Regulations for War. By Stabsarzt Dr. Johann Steiner, Austro-Hungarian Army.

A careful review of the sanitary regulations which have just been approved for the medical department of the Austrian Army, by one of the leading officers of that service.

The Use of Trained Dogs in Searching for and Carrying Aid to the Wounded on the Battlefield. By Lieutenant Charles Norton Barney, U.S.A.

Extent to which experiments in the use of dogs for ambulance purposes have been carried in various foreign armies. Practical results of field trials. Methods of training. Methods of breeding. Characteristics of the different breeds of dogs used. Thirty photographs.

The Naval Hospital Ship "Relief." By Surgeon William C. Braisted, U.S.N.

(1.) This paper is intended to give a description of the Naval Hospital Ship "Relief," at present being fitted for service, at Mare Island, California. (2.) Comments on the Ship. (3.) Remarks on Hospital Ship construction.

The Medical Officer in Campaign. By Major P. J. H. Farrel, I.N.G.

Dwelling particularly upon the necessity of the military side of the work of the medical officer, the writer comments upon the need of familiarity with all the hygienic details of camp life and active engagement in executive and administrative duties as well as exercise of medical professional functions.

The Canteen in the Military Service. By *Brigadier General Jefferson Davis Griffith, N.G.Mo.

A discussion of the true position of the canteen in the military service showing the fallacy of the arguments against it and indicating the advantages which it possesses in advancing the morale, the discipline and the contentment of troops.

The Medical Corps of the United States Navy,—Some Details Respecting its Past and Present. By *P. A. Surgeon James Nevins Hyde, U.S.N.

Introduced by a summary of the history of the early stages of the Navy and a brief sketch of the work of Surgeon Ezra Green, discusses the early work of naval surgeons in the post-Revolutionary, War of 1812 and Civil War times, with comments upon the opportunities and facilities afforded to naval medical officers of today.

On the organization and Conduct of the Sanitary Service of the First Line in Modern War. By Colonello medico Pietro Imbriaco, Royal Italian Army.

A discussion of the management of the first line of aid to the injured in battle from an Italian standpoint.

The Sanitary Sergeant. By Brigadier General Otis H. Marion, M.V.M.

The detail is suggested in each military company of an extra sergeant to be known as the "Sanitary Sergeant" and if this be impossible in any case the detail of a sergeant as an "Acting Sanitary Sergeant," to be instructed in and have especial charge of the sanitation of the company and its surroundings. His duties will include the personal hygiene of the enlisted men of his command, the hygiene of quarters, clothing, equipment and food and the conduct of the sick or injured men of the company. In each regiment a school should be held under the direction of a medical officer for the instruction of the sanitary sergeants of the several companies in order to fully qualify them for the work assigned to them.

The United States Naval Medical School. By Medical Director Robert Augustine Marmion, U.S.N.

Importance of a broader education for the naval medical officer than our schools can impart both professionally and from other standpoints. Glance at previous attempts at such instruction which have been made in our science. History of the Naval Medical School and its scope. Schedule of work done here and explanation of its various features and its value in increasing the efficiency of the medical officer in new fields.

The Surgeon of the National Guard. By Major Ralph W. Montelius, N.G.Pa.

The duties, military, professional and social, of the National Guard medical officer with some of the difficulties met with.

The Duties of Medical Officers in the Field. Experience to be Gained at Maneuvers and Encampments. By Captain Frederick P. Reynolds, U.S.A.

(a.) The Knowledge required of Medical Officers in the Field. Army Organization, army administration, field units. Military discipline, com-

mand, rank and precedence of officers and noncommissioned officers, Army Regulations, Customs of the Service. The Field organization and equipment of the Medical Department. The Medical Department on the march, in camp, and during an engagement. Medical Department administration. Hospital Corps administration and instruction. Organization and administration of military hospitals. Sanitary duties. (*b.*) The Organization and Work of a Camp of Instruction. Arrival in camp. Camp routine. Medical Officers' School. Hospital Corps Instruction. Lectures. The Medical Department in the maneuvers of the day.

Some Features of the Immediate Treatment and Transport of the Wounded in Naval Warfare. By Surgeon Charles Francis Stokes, U.S.N.

Types of wounds. The kind of immediate treatment indicated. Gun's crews to be supplied with packets of a new design and suitable size for the immediate treatment of shell wounds. The Stokes Splint Stretcher and the proper method of using it. Transport of the wounded from fighting ships to hospital ships. A consideration of the extent to which surgical treatment should be carried on fighting ships in the presence of hospital ships.

Medication on the Firing Line. By *Assistant Surgeon William F. Waugh, U.S.N.

Note upon the absence in the equipment of medical and hospital corps of medicinal agents for use upon the firing line. Suggestion as to the substitution of agents effective in small quantities such as glonoin, atropin, strychnine, morphine, etc., in the field equipment with comments upon their applicability.

An Hour with Dr. Thomas Trotter, Physician to the Fleet. By Medical Director John C. Wise, U.S.N.

Extracts from an Address of the late J. M. Browne, Surgeon General U.S.N. Important service rendered to the English fleet which won such imperishable renown for Great Britain. Views greatly in advance of others of his day. His great knowledge of nautical disease. The value of his work "*Medicina Nautica*." His indefatigable industry, and high administrative capacity. Introduces many improvements in the medical discipline of the Navy. Versatility as a writer. Tribute to the character of the British seaman. His work in connection with the eradication of Scurvy and Typhus. Advanced views concerning the hygienic and dietetic management of nautical maladies. "*Medicine the hand-maid of the art of war*." Efforts at reformation of Royal Hospitals.

James Markham Marshall Ambler, U.S.N. By Medical Director John C. Wise, U.S.N.

Illustrious and distinguished ancestry. Education of a Virginia boy. Later studies at Washington and Lee. Medical education. Enters naval service as an assistant surgeon in 1874. Service in the West Indies. Vol-

unteers for the Jeannette Arctic expedition. Life on the Jeannette during an Arctic winter. Zealous performance of duty. Studies in the causes of disease and morphology of snow-crystals. Medical Officer and Road-Master combined in the historic journey by sled and boat to the Lena Delta. The high esteem in which he was held by brother officers and his commander. His splendid physique, great urbanity and cheerfulness of manner. Devotion to duty attested by Medical Journals kept and carried over hundreds of miles of ice (Now preserved in the Navy Department). His sublime courage and christianity as exhibited in letters to his brother, written just before the last scene on the Lena Delta.

Army Medical Officers who have Become Secretaries of War.
By *Major James Evelyn Pilcher, U.S.V.

(1.) William Eustis, Surgeon of the Massachusetts Artillery Regiment in the Revolutionary War, Hospital Surgeon Continental Army 1776-1780, Hospital Physician and Surgeon 1780-1783, Surgeon of Regiment of Militia 1787, Surgeon to the forces employed to suppress Shays' Rebellion, Secretary of War 1807-1813. (2.) James McHenry, Assistant Surgeon Continental Army, 1776, Surgeon Continental Army 1777, aide-de-camp and private secretary to George Washington, aide-de-camp to Marquis de LaFayette, Secretary of War 1796-1801.

A Sanitary Study of Culebra, U.S.W.I., as a Naval Base.
By Medical Inspector Howard E. Ames, U.S.N.

The causes and necessities for a Naval base. Requirements of a Naval base from a military standpoint and the fulfillment of these requirements by Culebra. Requirements of a base from the medical standpoint and the importance of these requirements as shown by history. Examination of Culebra's healthfulness. The climate, soil, animal and vegetable life, and food supply. The water supply and chemical analysis of the water. The prevailing diseases, and preventable diseases. The varieties of mosquitoes and their breeding places. The inhabitants of Culebra. Means of producing perfect hygienic conditions from the standpoint of camps, hospitals, etc. The application of Sanitary laws in care and drill of fighting force. Collateral requirements for health and comfort.

Camp Sanitation. By Major Herbert A. Arnold, N.G. Pa.

Subject old but ever new. Object of this paper being to impress rather than interest. Ideal camp site. Water supply. Ration and care of. Latrines. Garbage disposal. Policing. Tent sanitation. Personal cleanliness. Corps, team drivers and civilians require watching. Frequent medical inspection. Change of camp site when contagion or infectious disease, or soil pollution are manifested.

An Improved Method of Standardizing the Recruit. By Surgeon Henry G. Beyer, U.S.N.

The significance of the physical examination in the selection of recruits

and its bearing upon the efficiency of the service. On account of the intimate correlation shown to exist between the physique of a boy and his mental qualifications, method is suggested by which the records of the measurements may be kept in such a form that they will at once show the physical rank of the recruit in its relation to all the rest of the recruits.

Practical Hearing Tests. By *Major William Sohler Bryant, U.S.V.

Inadequacy, inexactness, unreliability and injustice of the methods of testing hearing in common use in physical examinations. Needed: the sound of the human voice having a known intensity. Such a mechanism is found in the modern phonograph, when fitted with a sound proof box, a graduated stop cock, and a three way valve. Such an apparatus allows the exact determination of the ability of the applicant to understand the human voice, and also the absolute efficiency of each ear separately, independent of mental bias.

Malingering. By Lieutenant Samuel M. DeLoffre, U.S.A.

Reports five cases of Malingering observed in the Post Hospital at Fort Assiniboine, comprising cases of simulated (1) injuries to the forearm, (2) sprain of the knee, (3) lumbar and cervical muscular rheumatism, (4) ophthalmic disease, and (5) insanity.

The Effect of College Athletic games on Body, Mind and Character,—Especially as Observed at the U.S. Military Academy, West Point, N.Y. By Colonel Valery Havard, U.S.A.

Exercise is necessary for all young men but should be graded and adapted to individual needs. Athletic games are only for the few, violent and intermittent, therefore not a desirable form of physical exercise. They consume time and energy which could be more profitably devoted to mental training. On the other hand, they develop certain qualities of character valuable to all but especially to military officers, and, therefore, to be commended at West Point and Annapolis: there, the advantages clearly outweigh the objections. General considerations on the physical and mental characteristics of West Point athletes. Possible injurious effects of athletics on heart and lungs in after-life.

The Epidemic of Pneumonia. By Surgeon Charles Edward Banks, P.H. & M.H.S.

Statistical relation of Pneumonia and Tuberculosis, past and present, with comparisons of the increasing prevalence of former and the gradual decrease of the latter. The growth of pneumonia in our large cities of late years and the type of it as seen in Chicago. Its great mortality percentage and undoubted contagious character. Clinical description of typical case. Unsatisfactory results from all forms of treatment. Slow convalescence of those who recover. Need of combined effort to develop a successful curative agency.

Altitude and Expansion. By Surgeon Paul M. Carrington, P.H. & M.H.S.

A practical note of believed value in determining question of what climate to advise for consumptives. Meaning of altitude in this article. Expansion: Significance of. Reasons why expansion should guide in determining proper altitude for a consumptive patient. Statistics supporting the contention.

The Common House Fly as a Factor in the Spread of Tuberculosis. By Surgeon J. O. Cobb, P.H. & M.H.S.

Stating briefly the reasons for believing that tuberculosis, commonly, contracted through the intestinal tract. Describing the method by which the lungs can be infected, via., the intestinal tract. If the infection is through the intestinal tract what is the medium? Is it milk? Or is the fly the principal factor in planting bacilli upon food? Briefly referring to the habits of the fly and relating some experiments showing that it carries various bacilli in its stomach and deposits them in its dejecta. Pointing out the many ways the fly could infect food.

Pulmonary Tuberculosis, its Diagnosis and Course under Favorable Climatic Conditions. By *Dr. Edward D. Sinks, U.S.A.

A discussion of the climatic treatment of tuberculosis with illustrative cases and an account of the accessory treatment required.

The Dangers of Unrestricted Traveling of Consumptives. By Assistant Surgeon John W. Trask, P.H. & M.H.S.

(1.) The great number of those afflicted with pulmonary tuberculosis who travel, especially in the southwest. (2.) Their ignorance concerning proper care of sputum. (3.) Pullman, sleeping and other cars necessarily hot beds of infection under present conditions. (4.) Cities and towns of the southwest as well as railroad coaches a constant danger to the traveling public. (5.) Proper remedies.

Fracture of the Radical Head. By Surgeon Charles Edward Banks, P.H. & M.H.S.

Report of a case of fracture of head of radius, from indirect violence with skiagraphs, before and after treatment of the injured parts.

Report of Surgical Cases. By Captain James Brew, N.G. Tenn.

Comprises reports of two cases: (1.) Adams-Stokes disease, occurring in connection with acute articular rheumatism preceded by an attack of influenza. (2.) Obstruction of the bowel, due to bands of adhesions, accompanied with general peritonitis, following facial erysipelas.

Report of a Case of Acute Rheumatic Fever as Treated by John O'Connor, M.A., M.D., by His Surgical Treatment for Acute

Articular Rheumatism. By P. A. Surgeon J. Benjamin Dennis, U.S.N.

Report on D. H., coal passer (U.S.S. Detroit). Case of Acute Rheumatic Fever of Joints, as treated by John O'Connor, A.M., M.D., by his surgical treatment for acute articular rheumatism; with comments and references.

X-Ray in Military Surgery. By Lieutenant Harry Hall Hartung, M.V.M.

X-Ray Photographs. Possibly portable X-ray outfit such as is used for military purposes together with reports of the use of the X-ray in the Spanish-American, Boer, and Russo-Japanese Wars.

A Case of Perforating Gunshot Wound of the Stomach, Operation, Recovery. By *Dr. Charles B. Mittelstaedt, U.S.A.

November 1899, while on duty at Imus, Luzon, P. I., a Filipino girl was carried into the field hospital at that place. The field hospital was located in a room of the Convent adjoining the church and was supplied with the usual regimental field outfit. The patient exhibited two gunshot openings on abdominal surface. Preparations for operation. Laparotomy under anesthetic. Suture of two openings found in the stomach and subsequent treatment. Under ordinary circumstances, a soldier with a similar wound would have received temporary dressing, and been sent on to the Brigade Hospital at Bacoor, four to five miles distant, for further treatment.

Removal of Bullets Lodged in the Spheno-Maxillary Fossa. By *P. A. Surgeon Lewis Stephen Pilcher, U.S.N.

(1.) Difficulties in locating bullets lodged in the deeper recesses of the framework of the skull. Value of x-ray as an aid in such localization: Technical difficulties in reaching and removing such deeply lodged bullets even after accurate localization has been effected. (2.) Special relations of the spheno-maxillary fossa. History of recent case of gunshot wound of the face with lodgment of the bullet in that space. Fruitless effort to reach bullet by enlarging wound of entrance. Experience of author in exposing and removing the third branch of the trifacial nerve as far as the foramen ovale by elevation of the ramus of the lower jaw after dividing the body of the bone at its junction with the ramus and cutting across the inferior pterygoid muscle; application of this method in present case; complete success. (3.) Critique upon this route for gaining access to the spheno-maxillary fossa in various surgical conditions.

The Operation for Radical Cure of Congenital Inguinal Hernia. By P. A. Surgeon A. C. Smith, P.H. & M.H.S.

Congenital hernia described. The infeasibility of separating the sac from the cord in many cases of this form of hernia makes the operation for cure one of special difficulty and importance. Method given for overcoming

the difficulty and closing the neck of the sac without injuring the cord. Notes of four cases operated upon in the adult.

The Treatment of Abdominal Injuries with Special Reference to Gunshot Wounds of the Liver. By *Colonel J. E. Summers, Jr., Neb. N.G.

All wounds of the abdomen which raise the suspicion of the injury of a hollow viscus demand immediate operation. All wounds of the kidney or spleen should be operated by an appropriate technique. Most cases of gunshot wound of the liver are more safely treated by refraining from operation. Exceptional instances being those probably involving the gall bladder or ducts and knife wounds near the free border. The technique of operative treatment of wounds of the liver.

Gunshot Wounds of the Ureter—Two Cases of Uretero-Vesical Anastomosis. By Assistant Surgeon General George Tully Vaughan, P.H. & M.H.S.

Extreme rarity of gunshot wounds of the ureter compared with other wounds of this structure. Two cases of uretero-vesical anastomosis one for gunshot wound of the ureter received six months before, the other for injury to the ureter in removing the rectum for cancer. In both cases the proximal end of the ureter was grafted into the bladder, the end split and sewed to the bladder from within, through an opening in the front wall of the bladder.

Tetany and Foreign Bodies in the Stomach. By Captain James P. Warbasse, N.G.N.Y.

Up to the present time, the literature contains reports of eight cases of gastric tetany coming under surgical treatment. Five of these cases were cured; three died. The mortality among cases treated medically is 80%. The disease has always been associated with dilatation of the stomach, due usually to stenosis of the pylorus. Of the theories advanced to explain these peculiar nervous phenomena of gastric origin none is altogether satisfactory. The most acceptable view is that the disease has to do with the absorption of the products of fermentation in a stomach which is not able to empty itself. The spasms are excited by the mechanical irritation incident to the resisting pylorus. Usually after an effort at vomiting the patient falls unconscious in a convulsive attack. The character of these convulsions resembles both tetanus and epilepsy. Often there is a preliminary numbness of the hands. The muscles of the hands and forearms become tense. The tetanic spasm extends to the muscles of the back, neck, face, and lower extremities, and may be described as a series of tonic contractions. In the intervals between convulsions the patient may regain consciousness. Case operated upon at the German Hospital in Brooklyn.

Remarks on the Clinical Aspects of Cavite Fever. By Medical Director Remus Charles Persons, U.S.N.

General consideration. Clinical history. Etiology. Treatment.

First Aid in Naval Warfare. By Medical Director John C. Wise, U.S.N.

A critique of lately published views on this subject by English, French and Spanish writers. Preliminary consideration. Location of dressing stations. The contention that they should be a permanent feature in modern naval construction considered as most inadvisable. The stations and duties of the Medical Department during an engagement. The French idea that it should be under cover and practically non-active during an engagement, not well conceived either from the humane or utilitarian standpoint. Emergency dressing. In view of the nature of the service, when men are isolated, or performing duty in inaccessible localities, the importance of individual instruction in first-aid greatly enhanced in the navy.

The Need and Advantages of a Permanent International Congress of Military Surgeons. By Colonel Nicholas Senn, Surgeon General of Illinois.

(1.) The advantage to the service of the sick and wounded of a uniform method of medical assistance. (2.) The necessity under modern conditions of cooperation in aid to the disabled of the medical departments of both sides in active hostilities. (3.) The greater efficiency of service secured by mutual acquaintance among military medical officers of various nations. (4.) The peculiar usefulness of discussion and contact in professional convention. (5.) The desirability of securing this result by the institution of a periodically recurring International Congress of Military Surgeons.

The following papers, abstracts of which have not yet been received, will also be presented:

The Field Hospital for Use with Cavalry. By Lieutenant John Ryan Devereux, U.S.A.

The Sanitary Situation in Panama. By Colonel William Crawford Gorgas, U.S.A.

Tetanus. By Dr. Vernon MacCammon, U.S.A.

Experiences in the Late Venezuelan Troubles. By Surgeon J. C. Pryor, U.S.N.

Beri-Beri. By Medical Director John W. Ross, U.S.N.

Original Memoirs.

MILITARY MEDICAL CONDITIONS RELATING TO THE AMERICAN LEGATION GUARD IN PEKIN, CHINA.

BY CAPTAIN FREDERICK M. HARTSOCK.

ASSISTANT SURGEON IN THE UNITED STATES ARMY.

THE statement may appear paradoxical that north China is one of the healthiest spots on the globe when I follow with a description of the varied diseases encountered in this region, but it will be seen that from the utter lack of hygiene on the part of the inhabitants the hearty northern Chinese flourish above the dirt and filth as does the lotus above the black mud of their ponds.

The terrain and climate is all favorable and I think that even with the present sanitary system of the towns, if infectious cases were isolated, the morbidity record would be as low or lower than most of our eastern cities in the United States.

During a twelvemonth in Peking, I was struck by the small sick rate among the foreign residents. This population, including the diplomatic and military forces of the various nations, about a hundred missionaries, and a small number of persons engaged in trade enterprises, numbering in all not more than 3500, only produced about four cases of enteric fever in the year. Considering the utter lack of hygiene on the part of the natives and the surroundings in which were placed these foreign residents, this is a remarkable record. I should not exactly recommend Peking as a health resort but the finely built ruddy cheeked Chinese seen and the healthy, well-nourished appearance of the foreign residents attest the geniality and stimulating influence of the climate.

As Pekin lies in the same latitude as Philadelphia, we might expect about the same climate and with the exceptions I shall name the similiarity is evident. The winters are rarely severe the average temperature during the month of January would be about 20° F. to 25° F. although occasionally there are days when the thermometer may touch zero. The winters are short and begin and end in a gorgeous late Autumn and a comfortable early Spring. The Autumn season is ideal and is only marred by an occasional dust storm which will be presently described. The summers are short but hot, and the months of July and August are quite like those of our eastern states excepting the thermometer rarely registers 100 degrees. The spring of the year opens in March and an agreeable three or four months may be anticipated. In the province of Chili, the rainy weather is only met with in June and July, during which time drenching showers are frequent, and the other period of the year may not see a drop of moisture, excepting light snows which come in December and January. Rarely does it snow over four inches and this lies but a few days, being carried off either by high winds or melting before an intervening warm day. But in the winter the ground for the most part is solid and the disagreeable slushy periods of our eastern winters are seldom encountered. The number of days of sunshine is what makes the climate so agreeable for the most months of the year; a few cloudy days in the winter and during the summer, showers,—and the rest is like California. To the great number of days of sunshine and the out of door life which most of the inhabitants can lead, may be attributed their good health.

High winds are frequent in the months of February and March and during this period may be expected the dust storms which are one of the most disagreeable features in this section of the country. These phenomena appear generally without any following rain or snow and in a very short time the atmosphere is filled with a yellow dust which reaches such an intensity that at the height of the storm it is difficult to see more than ten paces ahead. The dust pervades all things and

is not without a deleterious influence on the health. The storms are said to arise in the desert of Gobi from whence the fine pulverous material is carried for hundreds of miles reaching over the northern provinces and into Manchuria and extending to the sea coast. The incidence of dust storms is parallel with the development of numerous cases of pneumonia and tonsillitis. Fortunately the wind is not high for more than twenty-four hours at a time, but the two mentioned months may be counted disagreeable for about half the period.

A glance at the map will show the capital situated in the midst of a great plain, the most northern city of any size, and near the northern range of mountains known as the Khun-tu-Shan. It will be seen also that the flat territory of which I speak is continuous from the coast over into the province of Shan-si, and northward only to the great ranges which separate it from Mongolia and southward beyond the Yellow river. The great Chinese wall practically includes all of this territory within its bounds.

The city of Peking is about thirty-five miles from the nearest mountains on the north and was purposely placed under the lee of these protecting ranges because of their sheltering influence.

It will be noted likewise that the area is well interspersed with rivers and a traveler into the interior will note the frequency with which small streams are encountered, facilitating the growth of vegetation and providing water during the great drouths that are liable to occur in this region.

If systems of irrigation were devised, the frequent famines due to crop failures would be unheard of, but that fatal quality in the Chinese of lack of public spirit permits none of this.

Drinking water may be found at any place in or around the city of Peking at a depth of from twenty to twenty-five feet. The wells yield abundantly though for manufacturing purposes the artesian water would have to be depended upon. A depth of 500 feet gives fine artesian water and without the

hardness characteristic of surface wells. The ordinary surface water is quite impregnated with earthy salts, and from this undoubtedly originates the many cases of vesical calculi encountered.

The city of Pekin is somewhat ahead of the smaller towns of north China in the way of sanitation inasmuch as in the original transformation of the city in the eleventh century when the capital was moved from Nankin to the present place, there were embodied in the plans some crude ideas of sanitation, and remnants of the work last to this day.

Before describing the conditions about Pekin, it is well to say a word or two about the smaller towns. All villages are laid out with due regard to the points of the compass; north and south, east and west are invariably the directions of the roads, streets, and files of buildings,—the north face of each building being bare of windows and the doors of the houses projected by a brick ante-door some three feet in advance of the main entrance. The houses are made of the adobe brick and with the better classes stuccoed. Invariably one story they are set well apart and there is little harm from over-crowding. Houses are arranged generally in sets; four separate houses facing a court compose one residence, the various separate buildings being used for living rooms, sleeping apartments, and stables respectively. Generally a small brick structure is built in one of the enclosures serving as a closet for the excretions deposited on the ground. In most cases there is little chance of soil contamination from this source as the material is collected in buckets each day by coolies who make this a business, utilizing the excreta after its fermentation for fertilizing vegetables and plants. The Chinese houses are in themselves fairly well adapted to the climate and are well ventilated. The façade is generally an open grill work covered with Chinese paper allowing easy exit and ingress to air without draft. The Chinese however suffer somewhat from the effects of coal gas poisoning in spite of the well ventilated houses. It is the custom to heat the houses by means of portable brasiers in which is burned "coal balls" that is,

coal prepared by pulverizing and mixing with equal parts of clay and made into balls about the size of an English walnut. As there are no chimneys in the houses the gases arising from these brasiers soon fill the rooms and the ill effects from their use is especially noticeable in the early spring when thousands of cases of chronic carbon monoxide poisoning are to be seen on the streets, and during the winter months many deaths occur from gas asphyxiation. The chronic cases are marked by the peculiar pallor and puffed appearance of the face appearing not unlike that seen in chlorosis.

No beds are in use as with us; a raised structure extending across the room, about seven feet deep and two high, built of bricks, serves a whole family as a place to rest, small mats rendering its surface soft and comfortable. The floors of these houses are almost invariably of stone and generally unswept.

The water supply of a village of several hundred inhabitants may be dependent upon two or three public wells, everybody dipping into the same source and not the least care being taken to prevent contamination through bad drainage.

The average north Chinaman is fond of an out door life and their houses are provided for warm weather as well as cold by plenty of doors and windows.

The clothing worn by the natives consists in the summer of light cotton material and in the winter of like stuff except that the coat and trousers are quilted and wadded with cotton batting. A greatcoat is generally an addition in winter, the lining ranging from sheepskin to sable according to the rank and wealth of the wearer. The Chinaman thus does not suffer in either winter or summer from the extremes of climate and most Europeans agree that the clothing worn by the Chinese is sensible both as to cut and material and well adapted to conditions.

The food supply of the natives differs little from that of our country, the principal meat used being mutton, but beef and pork are used in quantities. Corn, barley, buckwheat, millet and wheat meals are supplementary to the rice diet and

probably the bulk of the inhabitants of the interior live on millet rather than rice, the former being much cheaper as well as more nutritious. The ordinary leguminous and other varieties of vegetables are grown and supplemented with the fruits of the temperate zone; a fair range in the dietary is thus obtained. Chinese food is well cooked, stewing and frying being the principal modes of preparation. It will be seen thus that the ordinary coolie is not badly provided for either in the way of food or raiment, and that most conditions are conducive to good health.

To the inhabitants of Peking the above remarks may be applied with modifications. There exists more or less over-crowding in districts and the danger of water contamination is greater; while thousands of miserable dirty beggars and pariah dogs infest every locality. Owing to the absence of public spirit in the Chinese communities, no exertion is made in the prophylaxis of disease. The water supply may be contaminated and produce numbers of deaths but no attempt is even made to prohibit its use, neither are infectious or contagious cases isolated, though the Chinese are cognizant of the fact that many diseases like smallpox are directly contagious.

It seems that the Chinese, fatalists as they are, receive misfortunes through disease as a matter of fact, and until all of the accumulated superstition of centuries is eradicated, modern theories stand little chance of acceptance.

In habits and temperament the north Chinaman seems to be, either through environment or chance, well adapted to his surroundings. He leads an easy-going life, generally free from care; wrapped up in the traditions of his forefathers he dreams away the time in a fairy land of Chinese ideals. He sees not the filth and dirt around him but has ever present in his mind images of beautiful gardens, curious houses, strange rugged landscapes such as one sees on Chinese scrolls, but never in the original. The foreigner and his western ideas come as no rude awakening for both come as some curious fancy to be forgotten on the morrow and the son of Cathay lapses back into his *dolce far niente* existence, trusting to fate and the indulgence of the gods.

Excluding the use of opium the Chinaman is very temperate. The process of distillation has been known since the beginning of their history and many different alcoholic liquors are produced but the extensive use of spirits is unknown.

Opium smoking is the great vice and its extent is difficult to judge but its effects are quite noticeable among the population. Opium is used quite as the European utilizes alcohol, either as a habit or a means of promoting geniality and social intercourse, or for entertainment. The habit among the Chinese does not gain the same powerful influence as with the European, and most of the Chinese who smoke are not what may be termed habitués. The percentage of opium smokers differs according to locality. In the large cities it has been estimated by several missionaries with whom I have conversed on this subject that about fifteen percent of the Chinese men are regular smokers, and that most all will take a social pipe at times. So common has it become that a guest is always offered a pipe and even the large commercial houses have rooms apart for the especial convenience of their customers desiring a quiet smoke. Its effects upon a community depend largely upon the size and character of the population. I have been told that oftentimes travelers in the interior will encounter a settlement known as an opium village where most of the individuals are opium smokers. Such a place will last a certain number of years until death or famine claims most of the victims, and the more sensible citizens will desert the place and move to another and more prosperous town. There seems to be something in the Chinese character permitting such a condition as this to develop; one citizen following another in the habit until the whole population is destroyed.

I stated that the average north Chinaman was fairly well provided for in the way of food, but it is remarkable how the coolie class keep in such good shape physically on the slight rations provided. With the better class a meal is taken at 10 A. M., consisting of meat, vegetables, macaroni, rice, and tea, a light lunch of cake and tea at mid-day and at five a repetition of the morning meal. The coolie class rarely can afford meat

and three bowls of rice three times a day with a little pickle constitute the day's rations. Under this diet the heaviest work is done and apparently ample protection is received from cold. Milk products are not used except among the Mongols of the north and the only fat used comes from the pig. In the winter the coolie diet is supplied with some millet or corn.

The struggle for existence in China for centuries has produced a race very resistant to disease; over-crowding, poverty, and occasional famine has weeded out the unfit and a people is the result which in body and temperament will most certainly show their strength when they come to live on the same level in competition with the white races.

When disease overtakes the unfortunate celestial he resigns himself to fate. He has little faith in his crude materia medica in cases of severe illness and knows that from the state or municipality there will come no aid in the shape of medical attendance. In the larger cities at present there will be found numerous hospitals, generally under the management of missionaries who carry on their spiritual work in conjunction with medicine. For the few Chinese who dare cast aside their prejudices and superstitions these asylums furnish adequate aid and supplemented with a dispensary service are productive of a small percentage of benefit. Little, however can be done in the way of prophylactic medicine and the most simple methods are employed.

From Canton to Peking are hundreds of medical missionaries who are doing a good work, acting as the entering wedge of civilization to be followed I think in near years by decided improvement in the health conditions of the Chinese cities.

In the city of Peking there are the following institutions devoted to medical missionary work and providing the best of attention to those who desire treatment, gratis:

The Peitang, an institution founded by the Jesuit fathers in the 17th century as a religious settlement and in late years supplemented by a hospital and school both for the exclusive use of the Chinese. The hospital covers three acres of ground

and was rebuilt only one year ago. It has accommodations for one hundred and sixty free patients besides several private wards. The hospital is built on the pavilion plan, one storied, and the wards are contained in eight separate buildings of mixed Chinese and European architecture arranged in Chinese fashion with court yards. Ample floor and air space is provided in the wards but the old Chinese system of heating is still adhered to. The beds are built out from the wall as before described and mats are used in place of linen on which to lie. The hospital has a dispensary serving also as an operating room but only minor cases are operated on here; this hospital being in connection with another to be described in which all facilities are at hand. All classes of cases are treated here, most however being acute infectious diseases for which ample provision is made for isolation.

The second to be mentioned, instituted in the city within the year from indemnity funds received from the Chinese government, is known as the International Hospital, being entirely under the jurisdiction of the aforementioned religious institution, attended by the sisters of mercy and under the medical management of several French army surgeons. The hospital built of brick and composed of a simple structure with wings at right angles at each end has a fine modern operating room, laboratory, and forty-six private rooms as well as an isolation ward of six private rooms and in addition a large dispensary and pharmacy. Both Europeans and Chinese are treated in this institution; only the more serious medical or capital surgical cases being accepted. The hospital is located opposite the American Legation Guard in the Legation city and is beautifully surrounded by a small landscape garden. The work done in this hospital is excellent and very creditable.

Under the jurisdiction of the London mission there are two compounds of Chinese houses utilized as hospitals and dispensaries, one located in the Tartar city and the other in the Chinese city. The cases treated in these institutions during a year average more than ten thousand, including dispensary

cases. Major operative work is performed when extreme necessity demands.

Connected with the Methodist mission there has been recently opened in the Legation city a small but thoroughly equipped and modern hospital with accommodations for about fifty cases. In conjunction is a well equipped dispensary. The future of this institution is very good, all the gentlemen connected with the medical work speaking Chinese and through this medium may be expected good results in the propagation of ideas of hygiene and sanitation.

Besides the foregoing named institutions each nationality has connected with its Legation guard a hospital adapted to the size of the command.

The German Legation Guard consists of a command of 250 men and about ten officers and for this number is provided a hospital of thirty beds. The building at present is the regulation canvas frame transportable house and is not at all suited to the climate of Peking. A permanent brick structure is in course of building. The equipment is simple but well selected. An operating room is improvised from a section of the quarter and the surgical outfit is all that can be desired for aseptic work. In connection is a laboratory for microscopic work and an x-ray apparatus. This latter has never been satisfactory and is useless at present having been operated with storage batteries. In addition to the hospital is provided a field outfit consisting of two ambulances and a transport wagon. The hospital is managed by a surgeon with the rank of Captain and an assistant with Lieutenant's rank. The hospital attendants are taken from the line after a year's service and after qualifying in marksmanship. They are transferred then to the corps where they remain throughout their service. They are instructed in hospital work for four months previous to transfer and after entrance receive litter drill once a month.

The French garrison are only provided with a dispensary in their compound. Sick cases are detained in this dispensary for three days or until a diagnosis is made and thence transfer-

red to the above mentioned French hospital which is run in conjunction with the military organization. One Major, surgeon, performs this duty and there are only six attendants for a garrison of 250 men. No field equipment is provided except a small pack hamper, the principal field material being at the main station at Tien-Tsin where there is a garrison of one regiment and a battery of artillery.

The Austrian Guard has a neat little hospital of eight beds, the building being of brick and one story but well adapted for the work. The equipment is very meager consisting of a few cases of instruments and dressings and a Lietz field microscope.

The Italian Guard has a well constructed one-storied building in its compound and contains sixteen beds. The building is constructed after the style of Italian houses, with a central part utilized as a ward and sundry small rooms for operating room, attendants, lavatory, etc. The equipment is meager and ill-selected; capital operation could hardly be thought of in this institution.

The Japanese have a building set apart for their hospital which includes infirmary, and surgeons' and attendants' quarters. The equipment is rather light but all that is necessary for ordinary work. An operating room and laboratory are provided. The field equipment is excellent, in fact the best I have seen; contained in pack hampers it includes all necessary instruments, dressings, bedding and food. No transportation is provided and it appears that reliance will be placed on coolies to carry the small but complete outfit. The instruments, drugs, dressings, and even the blankets are made in Japan and are with few exceptions quite as good as those of European countries. Two surgeons attend the guard of 280 men and seven officers. They are both Captains and are exceedingly well informed being graduates of the University of Tokyo.

The Russian military hospital is adjacent to the barracks in the same compound, is constructed of brick on the plan of all Russian houses, is one-storied, and with walls about

28 inches thick. The heating is done by means of Russian stoves built in the walls with connecting flues leading all through these structures permitting the heat to circulate completely around the rooms warming the house by radiation from the walls. The windows are double with no provision for ventilation. The number of beds is variable but I am told that space is provided for twenty beds. The air and floor space is inadequate and the ventilation is nil. The dispensary, drug room, and operating room is one; a few dirty bottles of medicine and an old field case with a few dressings constitute the equipment. The hospital attendants are the most ignorant of individuals. The limit of their knowledge seems to rest with taking temperature and ladling out the food. Very little system prevails and no records are kept except a few small books for notes and names of patients with diagnosis. A Surgeon-Lieutenant has the organization in charge. During one of my visits to this hospital I saw a case of empyema of the pleura which had been neglected until it became evident even to a layman that the patient was suffering from fluid in the thoracic cavity. The surgeon inserted a trocar and withdrew about a gallon of pleuritic fluid into a dishpan which had been provided for the purpose and left the case without any dressing other than a small piece of cotton stuck over the wound.

The British have not yet erected their new quarters and are at present occupying the old Chinese buildings which were on the ground recently given over by the Chinese government. The hospital is located in one set of four buildings nearest the American Legation Guard. The houses are fairly well adapted for temporary use, the air and floor space being more than adequate. The equipment is very good and all exceedingly practical, adapted to the needs of 200 men and nine officers. The microscopical, surgical, and medical outfits are designed for any class of work. The transportation of wounded in the field is dependent on Hindoo bearers with dhoolies and ambulances. These latter are two-wheeled vehicles of Indian pattern drawn by two mules whose harness comprise the qual-

ities of pack-saddles as well as for draft work. These wagons accommodate two patients recumbent or four sitting. The hospital attendants are divided into two classes, white and the Indian, the former attends the wards work and the latter the policing and bearer duties, A Captain, surgeon, and an Indian assistant surgeon attend the guard, the hospital being a field hospital unit and of the Indian army.

The American Guard is better provided in every way than those of the foregoing named nations. Our barracks and hospital are simple in construction but adapted to the locality and needs of the force. The hospital built of brick is two-storied, roofed with galvanized iron, and contains eight rooms besides a kitchen and dining room. Two large glass covered verandas facing the south are well suited to the needs of the convalescent patients besides allowing the sun to penetrate well into all parts of the building. The entrance faces south and purposely no windows open to the north from which the cold blasts of winter come. Two rooms to the left of the entrance are used for dispensary and operating room; these, being on the first floor, are easily accessible, and with the remaining rooms on the opposite side as medical and surgical wards, the whole work is easily carried on on the lower floor. The upper rooms are used by the hospital corps with one room set aside as an isolation ward. The wards accommodate easily nine patients but with the room up stairs in use the number can be raised to twelve. Our equipment is second to none. The dispensary is the most systematic and well-arranged in Pekin. The operating room is provided with all material necessary for major and minor work. During my service at this station I performed a number of major operations as well as a large amount of minor work and did not get in any instance but the best of results. The facilities for asepsis were perfect and I had not the least fear of opening the abdomen knowing that the sterilization could be depended on as well as the assistance of the corps. Likewise there was no lack of material for clinical investigation and especially microscopical work. Our ration and the forty cent allowance

provided a diet for patients that could not be approached by any other nationality. For field service the detachment would have found nothing lacking, although the medical and surgical chests were of the old pattern,—this was the only single drawback. The tentage, bedding, transportation and ambulance were all immediately available.

To sum up, I could see by minute inspection of the equipment of each nationality in Peking that we had nothing to learn from them; that our equipment and system was absolutely the best.

The sick rates of the Legation Guards remained about the same throughout; a close watch was ever kept on the native population for the advent of an infectious disease. The medical officers of the various guards as well as those connected directly with the legations were organized into an association with a committee delegated to facilitate information as to the health conditions of the town, and a definite reciprocity in the health status of the guards was carried on.

Each nationality looks after its own sanitary arrangements. There is no common system as to water supply or disposal of waste and sewerage. The pail system is generally in vogue, Chinese scavengers being employed for the purpose and the waste material is carried well beyond the Tartar city to be utilized as fertilizer.

The new Legation buildings in process of construction have for the most part arranged to use the old Chinese sewers which drain into the moat outside the Tartar city. The proximity of this canal to the legation section is in my opinion unsafe if the procedure is carried out. The danger from flies, soil contamination, and infected vegetables washed in this water would be a serious matter to the foreign section should an epidemic of cholera or enteric fever appear.

The water supply is for the most part from the surface wells in the various Legation compounds. The water is hard but uncontaminated; however several guards namely the French, Russian, German, and American have taken the precaution to provide distilling plants which furnish sufficient

water for drinking and culinary use. No case of disease has in my time been traced to the wells in the guard compounds, although the wells adjacent in the Chinese section are notoriously bad.

The health of the various commands is excellent. It is especially noted that soldiers sent from the various stations in southern Asia and the Philippine Islands rapidly improve in health and gain in weight and color on coming to Peking.

Most Americans sent from the Philippines develop malaria soon after arrival, the cold serving to bring out the latent organisms, but after treatment for a fortnight with quinine, the trouble disappears, not to return, and invariably the patients gain in weight from ten to thirty pounds afterwards. I am told the same is noted with the French who come from Indo-China and the British from Hong-Kong and other tropical possessions.

The habits of the men depend largely on the nationality. I am sorry to say that, although the Americans preserve most excellent discipline, drunkenness is more prevalent among them than the other nationalities. Possibly this is due to the lack of the Canteen system with us. The British have a well-established post exchange, where light beer is sold and in connection, a club room, which tends to keep the soldier in barracks and preserve sobriety. The French give a ration of wine; likewise the Italians and Austrians. The Japanese sell beer and saké in their compound, but never have a case of drunkenness. The Germans have a home-like rathskeller, where beer and German foods are sold, and their drunkenness is nil. The Russians have no post exchange, as the soldier only gets about 20 cents a month and therefore has little to spend in liquor; but often these soldiers convive with other nationalities and there is likely to be drunkenness if the liquor is attainable. The American soldier, however, is forced to the low groggeries and dives, dozens of which exist on the outskirts of the legation quarter, and the result is he either imbibes an extra quantity of alcoholics to last until he reaches the barracks, or buys cheap whiskey in bottles and secretes it for

use in the garrison. The American soldier is the most sought after, as he has far more pay to spend than the other nationalities, and the result is the extra tendency to fall into the hands of these brothel- and saloon-keepers, who especially cater to encourage this trade. I believe this accounts for the extra large venereal rate among our soldiers.

Having given some idea of the country, surroundings and people with which our soldiers are forced to live, a better conception will be gained when I speak of the most prevalent diseases in this locality and their influence upon the residents, both native and foreign. I will describe the most commonly prevalent ailments under their separate heads and their reference to the morbidity rate of our small command in Pekin. Notwithstanding the unhygienic surroundings, the sick rate is very low. The percentage in hospital averages about the same with all nationalities. From two to five per cent are generally in hospital; those in quarters can hardly be counted as it is the custom to take all soldiers indisposed into the hospital, the sick rate being so small and the hospital accommodations so ample. One-half of the cases in hospital are venereal. So this would leave a very narrow margin for other cases. An inspection of the total guard hospitals in Pekin only showed in the month of September last fifteen venereal cases, three malaria, two typhoid fever and a few minor infirmities.

Without regard to classification of the diseases in their pathological order, I shall begin with the infectious and contagious maladies, which are of most interest to the foreigner, from the point of prophylaxis.

Typhoid fever.—Every practitioner who makes a stay in Pekin notes the rarity of typhoid in the resident population, and each offers his explanation on various hypotheses. It would appear at first that the general conditions in north China were well conducive to the spread of typhoid,—the soil contamination, water supply from surface wells, numerous water-courses and their frequency of contamination, and the use of food easily infected by bad water. These factors cer-

tainly are favorable, but it will be seen that there are others directly to the contrary, and upon these I base the comparative rarity of this affection. The frequency* with which it is encountered is hard to estimate; no good statistics are at hand, and in fact, there are no figures except the few kept by the various local hospitals, which are no basis on which to get the relative morbidity. I have been informed by practitioners who deal largely with the Chinese, that enteric is rarely seen and when it occurs the cases are rather mild in degree. The Peitang Hospital could not give any figures for the reason that the new medical section was open but a short time and no Widal was tried on the fever cases. However, from several visits to this institution I would estimate that about two percent of their medical cases were typhoid. There were recorded on the field register of the American troops which reached Peking on the expedition of 1900, thirteen cases of typhoid, probably infected elsewhere. In 1901 there were two cases in the guard and in 1902 there was but one during the year. In 1903 there were no cases until October, when five appeared at one time, with one death. In the British legation guard for 1903 there were two cases in 380 persons. The Germans had one case in 1903.

There are several factors accounting for the small rate of enteric, the principal ones being: non-use of dairy products made in the country (the Chinese do not use milk in any form, and the foreign population depend on conserved products); the alkaline soil; the great number of days of sunshine throughout the year; the depositing of waste matter on the surface, where it is rapidly disintegrated and sterilized by the sun's rays; and the use of cooked food and tea by the native population.

Malaria.—This infection is not infrequent at present in north China, along the Peiho River, and I am informed that it has appeared only since invasion by the foreign troops in 1900. It is very probable that the cases were introduced by the British, American and French troops who were sent from notoriously malarial sections, and that the difference in types which I shall describe, can be traced to the transfer from Tien-

Tsin to Peking during the siege. As to the types, I can speak from some experience and observation with our soldiers. Malaria has frequently appeared in our guard, the majority of cases being latent from the Philippines; in fact it is the rule for a soldier transferred from Manila to Peking to develop malaria within two months. At least one-third of the troops show this infection. However I have noted cases in soldiers who have never served in the Philippines and who have come direct from non-malarial regions in the United States. Several of these with tertian infection first brought this to my notice and later, in the native population, I had an opportunity to demonstrate the presence of this variety. In Peking I have seen only the benign tertian form, but I am told that from Taku to Tien-Tsin numerous cases of the aestivo-autumnal infection have developed; this from the French surgeons who have given some little attention to this subject. Possibly the absence of the malignant type in Peking is accounted for by the development of this infection in the troops during the battle of Tien-Tsin and their detention at Tien-Tsin Hospitals until cured, the benign cases being more resistant and not developing fully until their arrival at Peking. All yield readily to the acid solution of quinine and two months is generally sufficient to eradicate completely the Philippine infection.

Dysentery.—A form of dysentery is seen in Peking during the rainy season, which corresponds to the Shiga infection of the Philippines, excepting that the types are not as severe.

During the campaign in China in 1900 our troops showed quite a rate for dysentery for about a month, but after this fewer cases were noted. These first were old infections from the Philippines, undoubtedly. That amoebic dysentery is not present in North China I firmly believe. The Germans claim numerous cases of amoebic dysentery just after the campaign, upon their arrival, and numerous abscesses of the liver, but these certainly were not infected in China. Probably if they did have true amoebic dysentery, the infection came from drinking water from one of the various tropical ports touched en route. I have examined repeatedly for amoeba in dysen-

tery cases, both in foreigners and natives in Peking, but never have encountered anything of this character. In the German cases the abscesses of the liver may have been due to enteric infection or embolism through the portal system in dysenteries due to pyogenic organisms; certainly no tropical abscesses could have been contracted in North China.

Smallpox has been known in China since the beginning of history, as well as a form of vaccination, designed for its prevention. The frequency with which pockmarked natives are encountered shows the great danger foreigners run in visiting this section unprotected by vaccination. That the disease is regarded lightly by the orientals may be judged when I state that I have seen a baby in the pustular stage of smallpox, being carried in the arms of its mother about the streets. The disease is generally contracted in infancy by the natives and it has been the custom to practice a form of vaccination by inoculating the infants in the mucous membrane of the nose from the pustules in a fully developed case. That unprotected foreigners develop smallpox readily in China goes without saying and the cases are always grave. During my stay at Peking I noted five deaths in foreigners from this cause. The native population is awakening to the good results of vaccination and it is very frequently practiced. In the American section of Peking for 1903 two cases developed in foreigners, one in a legion clerk, vaccinated in infancy, and the other in a soldier who had been repeatedly vaccinated, without result. Both cases were of a modified type and recovered.

Pneumonia.—Acute lobar pneumonia is very prevalent among both the native and foreign population. Predisposing to its development is the filth-laden dust, high winds, and cold of the winter. The cases differ in no wise from those seen at home. In the American guard there were two cases during the winter of 1902-3. Numerous cases were reported from the various other guards during the same period. I treated several pneumonias in natives at this time and though they had little nursing, or care, they progressed as well as the Europeans.

Diphtheria.—While this affection does not often appear in adults, its presence in Pekin is sufficiently frequent to note. It yearly causes the death of thousands of children. As there are no pharmacies selling antitoxine in the city, the supply must always be kept on hand by the practitioner. The French hospital was the only place that possessed it during my service. A supply of at least 12,000 units should be on hand at our hospital in Pekin and replenished twice yearly. There were no cases during the year 1902-3 in our troops.

Tuberculosis.—Possibly as strong an argument against the bovine theory of transmission of this disease may be derived from the examples seen in North China. No milk products are used, yet the disease is exceedingly frequent in the native population. The causes are over-crowding, expectoration on the floors of the houses, insufficient nourishment. The pulmonary form predominates, yet joint and glandular lesions are seen in numbers. The cases do not appear to do well under treatment, though the climate be exceedingly dry and bracing. The disease is well recognized by the Chinese, and its inevitable end is understood. Upon discovery of the nature of his illness the oriental takes to the use of opium and the malady is of short duration.

Cholera.—Epidemics of cholera have appeared in north China at intervals of three to five years. The source of infection is tropical China and India following the trade routes. This infection is almost always present in Canton, and occasionally assumes the proportion of an epidemic. Bombay and Calcutta spread the infection by ships to the Straits Settlements and thence the disease travels northward along the coast towns of China. While Hong-Kong is an excellently governed town and great care is given to the prevention of infectious and contagious diseases, the great amount of trade does not permit of strict quarantine and this port is largely responsible for the transmission of infectious diseases from the tropics to northern Asia. The Philippine epidemic of 1902 originated from infected vegetables brought from Hong-Kong to Manila these having been grown near Canton and

fertilized after the Chinese custom. During this time cholera was epidemic in mild form in Canton, and all of the principal cities on the Chinese coast were in turn infected. Shanghai had a severe epidemic in the months of May, June, and July in the year of 1902. The native population principally suffered but many deaths occurred in the foreign concession as well. When the writer visited Shanghai in September 1902 the epidemic had ceased but for a few sporadic cases, though the shipping was occasionally molested. At the height of the epidemic few vessels of either the northern or the southern trade escaped without a few cases, and in some instances the crews were decimated. At this time the cholera had spread to Japan entering almost simultaneously at Nagasaki and Yokohama. Here the epidemic ceased in 1903, the last cases occurring in Nagasaki in November.

Cholera had been introduced into north China in the spring of 1901 probably through Shanghai through the medium of Chinese coolies. The disease quickly evidenced itself in Manchuria extending up into Mongolia and even into Siberia killing thousands.

Pekin did not suffer until the summer of 1902 when a few cases developed in Tien-Tsin and Peking simultaneously. Strange to say, the disease did not get a strong foothold in this latter city. The presence of cholera was noted by frequent deaths among the native population and the coffin shops for a few months did some business but estimates by foreign practitioners from the latter source place the number of deaths below a few thousand. In the Legation section there appeared two cases, one in the Japanese Legation in a servant, and the other in the German guard. Both died. Extra precautions were taken to prevent infection and the result of course was excellent.

The American guard was unmolested and had, in fact, little to fear as the soldiers were careful to observe fixed rules with regard to food and drink.

The epidemic ceased in August in the province of Chili and since then there has been no recurrence.

There is little fear from this source in time of peace. The garrisons can be easily protected. But in event of invasion of China by foreign armies, extra precaution in the way of quarantine would have to be observed against Shanghai and all ports south.

Bubonic Plague.—Certainly the Chinese must have selected the region of Peking for a capital with regard to its immunity from invasion by infectious and contagious diseases.

Plague has raged in Canton at intervals for years, has existed in Hong-Kong from time to time in epidemic form, and even extended to Shanghai and thence northward to the port of New Chwang. Peking has as far as I can learn never had a case. Plague appeared in the port of New Chwang three years ago according to the report of the Chief of Imperial Chinese Customs, Sir Robert Hart, and has existed in epidemic form since. The disease has extended to numerous small towns along the Chinese Eastern railway and downward along the coast to the Peiho river, never approaching Peking nearer than a small town of six thousand inhabitants located on a branch of the Tien-Tsin railway called Peitang.

In the spring of 1903 reports were received by the consulates, of the presence of a disease in Peitang which was accompanied by fever, swelling of the glands, and with a very high mortality. The Japanese sent a surgeon to investigate the nature of this infection and found it to be true plague proven by bacteriological examination. The report received from the Japanese legation later gave a record of eighteen hundred deaths from this source for three months, February, March and April.

Syphilis.—This disease is especially prevalent and was known in China before the Christian era. Mercury has been used in its treatment as far back as the history of Chinese medicine dates. All forms of this affection may be seen in the clinics from the earliest eruption to the old osseous lesion. Hereditary cases are met with in extraordinary frequency. The Chinese not distinguishing between this and many other skin diseases of like appearance, have a common name for all

and do not appear to know the disease can be transmitted from mother to child.

A practitioner who has treated a large number of cases of syphilis in the Chinese informs me that it yields quite as readily to treatment as with the European. While the Chinese practitioners use mercury in the form of a red sulphide and iodide they do not give prolonged treatment, the drug being administered in very large single doses salivating the individual at once. When symptoms disappear the treatment is discontinued and resumed upon reappearance.

The soldiers of the foreign guards have an extraordinary high rate of this disease. It is difficult to get at exact statistics as the surgeons are reluctant to state facts, but I have been able to approximate sufficiently for an opinion. The Japanese have few cases. The Austrians, Germans, and Italians, must have about from ten to fifteen per cent of their men affected. The British state that they have rarely a case. This I do not credit. Possibly five per cent would cover it. The French have a high rate, possibly equal to ours. The Russians have a rather low rate, but I noticed that the Russian Army surgeon kept a stock solution of Hydrarg. Salicylate on hand for hypo use, and some cases must exist. The Americans, I am sorry to say, have a very high rate. During the period from October, 1902, to October 1903, I treated thirty-five cases in the guard. These cases were kept under careful observation the while and treated for six months with hypos of gray oil after the method of Lang, of Vienna, and later with mixed treatment. All responded to the treatment. No cases did badly except one which developed nephritis, and died. The disease was contracted exclusively from the Chinese and Japanese and I am unable to see the difference between the severity of the Asiatic infection and European. In fact, I was struck by the comparative mildness of the disease, as after six weeks generally there was not a symptom except in a few cases which developed iritis or throat lesions.

Specific Urethritis.--About ten per cent of the soldiers were infected all the time with gonococcus infection. Treat-

ment consisted of alkalies and bromides for two weeks, later ol. santali. About five weeks was the average duration, apparently uninfluenced by drugs.

Contagious Eye Diseases exist in shocking proportion among the Chinese, the principal affections being acute purulent conjunctivitis and ulcer of the cornea. The causes are several,—dust and winds, flies, and the habit of the native barbers of scooping under the eye-lids for the purpose of cleanliness. The cases of conjunctivitis respond readily to protargol, one per cent instillations, and the corneal troubles to the yellow oxide of mercury.

Skin Diseases due to filth come to the clinics in numbers,—all forms of mycotic dermatitis, ecthyma, impetigo, contagious, and parasitic. Pastes of arsenic and cinnabar are largely used by the natives in these cases with success. The former substance is used also as a dusting powder in infected wounds.

There are three other affections seen with sufficient frequency to especially note. These are:

Goitre.—This is especially prevalent in north China and is seen even in Mongolia. Its presence cannot be accounted for by any of the theories. It is chiefly seen in women, very rarely in children. I estimated that from seven to ten per cent of women had more or less thyroid enlargement. The disease is rarely seen in men and is not confined to the native population. I saw two cases in European women long resident in north China. The parenchymatous type is most general, though some cases are cystic. The Chinese use for the treatment of goitre pastes of red iodide of mercury with some success.

Vesical Calculus.—Stone in the bladder is a common disease in China and is ascribed to the extreme hardness of the water. Practitioners among the natives operate frequently for this affection. It is especially prone to develop in eunuchs on account of the contraction of the urethra after the operation of castration.

Echinococcus Cyst.—This is mentioned because the tinea echinococcus is not described as occurring in China in any of

the books I have so far consulted. I have seen three cases of hydatid of the liver in Chinese one of which had undergone spontaneous cure by ulceration through the abdominal walls. The cases all gave a history of having existed for about a year and a half. I am told that this condition is rarely encountered.

In summing up this paper I wish to emphasize the benignity of the climate of north China and the excellent conditions under which troops could be placed in case of campaign in this region. Should our forces again have cause to participate in hostilities here in large bodies I believe that with our present system in the medical department we could successfully cope with any emergency that might arise and a sudden or prolonged campaign would not find us wanting.

DEATHS IN BATTLE DURING THE LAST CENTURY.

THE genial and learned Professor of Physiology in the Faculty of Medicine in Paris, Professor C. Richet, once wrote a novel and made a forecast of the probable condition of the world a hundred years hence. An ardent lover of peace on earth and an eloquent apostle and advocate of the doctrine of good-will among men, Professor Richet has been "looking back" over the past century and reckoning the death toll due to wars during the enlightened nineteenth century. He estimates the grand total to be about 14,000,000, made up as follows: Napoleonic wars, 8,000,000; Crimean wars, 300,000; Italian war, 300,000; American Civil war, 500,000; Franco-German war, 800,000; Russo-Turkish war, 400,000; civil wars in South America, 500,000; various colonial expeditions in India, Mexico, Tonquin, South Africa, etc., 3,000,000. If to these who died on the "stricken field" we add the number of "broken" disabled soldiers, the widows and children who suffered, we have indeed a huge budget of slaughter, a record of Christian activity, that almost makes one despair. The new century seems to have started as if it intended to maintain the record.—*British Medical Journal*.

OBSERVATIONS ON MALTA FEVER IN THE UNITED STATES ARMY.*†

By LIEUTENANT CHARLES F. CRAIG.

ASSISTANT SURGEON IN THE UNITED STATES ARMY; PATHOLOGIST TO THE UNITED STATES GENERAL HOSPITAL AT THE PRESIDIO OF SAN FRANCISCO, CALIFORNIA.

DURING the year 1901-1902, fourteen tests were made in the Presidio General Hospital for Malta Fever by the agglutination reaction, of which four were positive. On account of the interest pertaining to the occurrence of this disease in the United States Army, I reported these cases fully in the annual report of the hospital for that year together with the literature of the subject. The report was as follows:

Medical Officers of the British army were the first to draw attention to a disease prevailing in Malta and other Mediterranean stations possessing many of the symptoms of typhoid but differing from that disease in important respects.

In 1816 Burnett¹ described very fully this disease, but regarded it as being a remittent malarial fever. This view of the character of the fever was adhered to for many years, and it was not until 1878 that the distinction was clearly drawn by Medical Officers of England between remittent malarial fever and Malta fever.

When first described the disease was supposed to be peculiar to the Island of Malta, hence the name Malta Fever; but continued observation has proven that it is a widespread disease

*Extract from the Report of the U.S.A. General Hospital, Presidio of San Francisco, California, for the fiscal year ending June 30, 1902. By Colonel Alfred C. Girard, Assistant Surgeon General, U.S. Army.

†Since writing the above report I have observed three additional cases of Malta fever at this hospital, one of which was diagnosed as typhoid and the other two as remittent malarial fever. These cases all presented acute symptoms and resembled in all important particulars those which are here reported. June 1, 1904.

¹Burnett: Practical Account of the Mediterranean Fever, London, 1816.

throughout tropical and subtropical regions. Thus Donaldson² described cases in Gibraltar, Tomaselli in Sicily, Patterson in Constantinople, Oliver³ along the banks of the Danube, Veale⁴ in Cyprus, Musser⁵ and Cox⁶, in Porto Rico, Chamberlain⁷, Curry⁸, and Strong⁹ in the Philippines.

Many and various were the opinions held by observers as to the etiologic factor in the production of Malta fever, and it was not until the painstaking researches of Bruce were published in 1887 that anything positive was known as to the etiology. Bruce¹⁰ demonstrated the cause of the disease to be a micrococcus to which he gave the name "Micrococcus Melitensis." His researches threw a flood of light upon the etiology and pathology of this hitherto obscure disease.

I shall not enter here into any detailed description of the pathology or symptomatology of Malta Fever, save to say that it is generally a fever of long duration, subject to frequent relapses, presenting a most irregular and confusing temperature course and accompanied by severe pain in the joints, constipation, profuse perspiration, and often followed by arthritic pains, with or without swelling of the joints. An enlarged and tender spleen is very common. Diagnosis of the disease has heretofore presented many difficulties, as it resembles in many instances typhoid or remittent malarial fever; and even with the help of the microscopical examination of the blood and the Widal test, the distinction between these diseases cannot always be made. In 1897, however, Wright, of the Royal Army Medical School, England, discovered that the blood serum of a patient suffering from Malta fever will agglutinate the micrococcus melitensis in very dilute solution,

²Donaldson: Army Statistical Reports, 1839.

³Oliver on Danubian Fever. *Lancet*, Vol. II, 1892, p. 1359.

⁴Veale: Report on Cases of Fever from Cyprus, Malta and Gibraltar. *Army Medical Department Reports*, England, 1879.

⁵Musser: *Philadelphia Medical Journal* December, 1898.

⁶Cox: Report of Surgeon General, U.S.A., 1899, p. 285.

⁷Chamberlain: Report of Surgeon General, U.S.A., 1900, p. 226.

⁸Curry: Report of Surgeon General, U.S.A., 1900, p. 226; also *Journal of Medical Research*, Vol. VI, No. 1, July, 1901, pp. 241-248.

⁹Strong: Report of the Surgeon General, U.S.A., 1900, p. 227.

¹⁰Note on discussion of microorganisms in Malta fever, *Practitioner*, Vol. XXXIV, p. 161. Also observations on Malta Fever, *British Medical Journal*, May 18, 1889.

and this agglutination test is most delicate and can be depended upon absolutely in diagnosis. I will give in detail later the method of performing the test.

DESCRIPTION OF CASES.

At the U.S. Army General Hospital, Presidio of San Francisco, California, the blood of every patient admitted is examined microscopically, by order of Colonel Girard, the Commanding Officer. Unless specially requested by the attending surgeon, the Widal test and the agglutination test for Malta fever are not performed, so that it is possible, and indeed probable, that cases of Malta fever may have passed through the Hospital without being discovered. By the courtesy of Professor Welch, Johns Hopkins University, and Professor Ophüls, Cooper Medical College, San Francisco, I have been supplied with cultures of the micrococcus melitensis, and these have been used in making the agglutination tests in the cases about to be reported.

From December 1st, 1901 to date (June 24, 1902), four cases of Malta fever have come under my observation at this Hospital; two during acute exacerbations of the disease, and two during the chronic stage.

CASE 1. Two attacks of Malta fever, the first complicated by combined estivo-autumnal and tertian malaria.

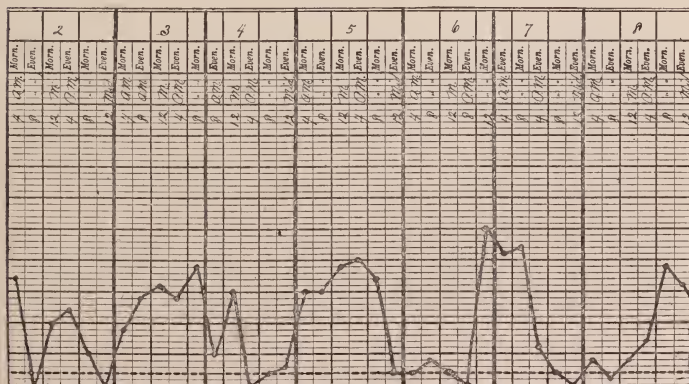
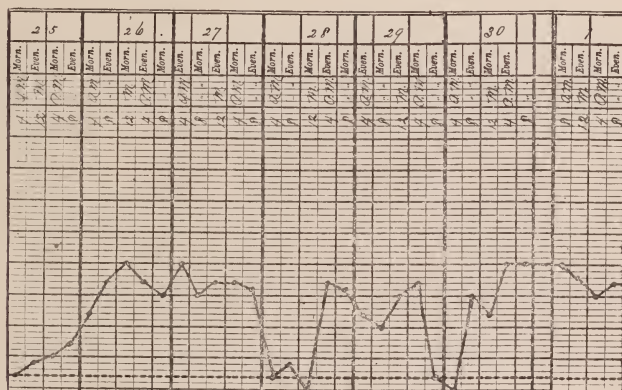
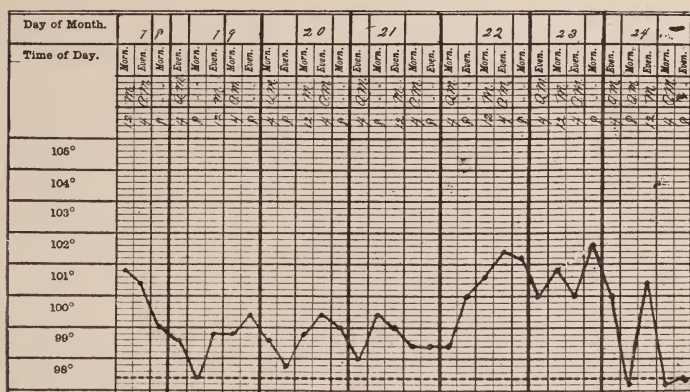
This case occurred in the person of an Assistant in my Laboratory who had suffered repeatedly from attacks of malarial fever and was under the medical care of Dr. Edmund Barry, to whom I am indebted for the data.

History of the Case before Admission:—Gustav T. W. Schmidt, Private, Hospital Corps. Age 28 years. Birthplace, Germany. Enlisted in the U.S. Army April 7, 1898, in New York City. He arrived in New York City from Europe in 1891, and had never been sick prior to enlistment. After enlistment was immediately ordered to Tybee Island, Ga., where he joined Battery "F", 5th U.S. Artillery. He left Tybee Island with the Battery April 23, 1898, and was next stationed at Chickamauga Park, Ga., where he remained one week, at the end of which time he went to Port Tampa, Florida, and about July 1st arrived at Santiago de Cuba. He had not been sick up to this time. After the surrender of Santi-

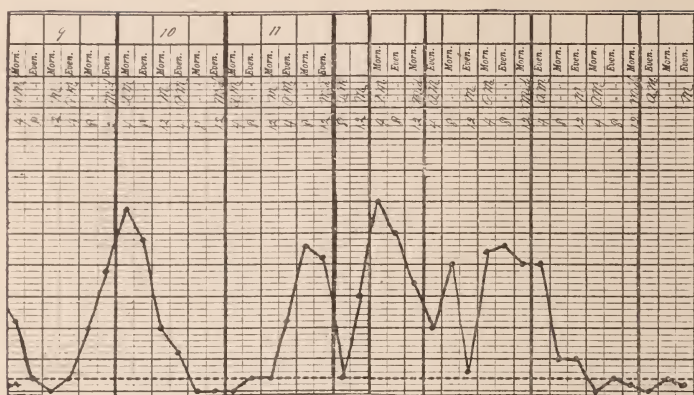
ago he camped until about August 15th, 1898, near El Caney, and while in this camp often had slight chills followed by a rise of temperature, and was treated with quinine. Before embarking for the United States he was stationed for one week in the city of Santiago, doing guard duty in the streets, where he had to sleep. He left, August 23d, for the United States, and went on sick report the next day, the physician diagnosing the fever from which he was then suffering as typhoid. On September 1st he arrived at Montauk Point, Long Island, where he stayed for five days, when he was transferred to St. Catherine's Hospital, Brooklyn, N. Y. Here he improved rapidly, and about September 16, 1898, was taken as a convalescent to Shepley Hall, Atlantic Highlands, N. J., through the kindness of Miss Helen Gould. About October 4, 1898 he was granted a furlough for one month to visit Brooklyn, N. Y. The next day he was seized with a severe chill followed by high temperature and sent by ambulance to the Methodist Episcopal Hospital, Brooklyn, where he stayed for two weeks, after which he was transferred to St. Catherine's Hospital. At this Hospital his case was diagnosed as typhoid malaria. About December 4, 1898, he reported for duty with his Battery at Fort Hamilton, N. Y., where he stayed until March 31, 1899. During this time he had several attacks of malaria, having chills followed by fever, nausea and vomiting, pains in all the bones and severe headache. On April 1st, 1899, he left New York for Manila, by way of San Francisco, and was well until July of that year, when he had slight chills at San Pedro, Macati, P. I. He also suffered from attacks during August, 1899. During January, 1900, at Bacour, P. I., he had fever and chills, with severe pains in all the joints, repeatedly. He was then transferred to Manila, and while on duty at the Medical Supply Depot in that city he had several attacks of fever, with pain in all the joints, severe headache and high temperature. In November, 1900, he was ordered to the United States, his case being diagnosed as malarial cachexia, although he had never had an examination of the blood. From November, 1900, until September, 1901, he had several chills, followed by rise of temperature, with pain in all the bones and in the lumbar region. At this time I discovered numerous estivo-autumnal parasites in the blood.

History of First Attack, Complicated by Malaria: On Sept. 4, 1901, patient had a chill and was admitted to Hospital. At this time an examination of the blood showed a few nearly full-grown tertian parasites, and numerous estivo-autumnal parasites. Patient appeared in fairly good condition although somewhat anemic. Presented a coated tongue and complained of constipation, severe headache and backache. Physical signs, negative. The case at this time was supposed to be one of malarial fever, and quinine was given in large doses. The temperature at this time did not go above 102° , and the treatment with quinine brought it down to normal in a few days and the patient was returned to duty. On the 18th of September patient had another chill and was again put upon sick report. An examination of the blood at this time showed a few estivo-autumnal parasites, and treatment with quinine was resumed. Patient complained of the same symptoms as of the previous attack, but mostly of severe pains in the joints. An examination of the blood was made every day, and the estivo-autumnal parasites disappeared by the 21st, but the patient continued to run an irregular temperature. This irregularity continued, as will be seen by reference to the thermograph until Oct. 13, during which time no malarial parasites could be demonstrated in the blood, and an examination was asked for as to the possible occurrence of Malta fever. This examination was unsatisfactory, because of the fact that my culture of the micrococcus melitensis had become infected and it was impossible to secure a new one. It was noticed, however, that a partial agglutination was obtained, and from the history of the second attack I have no hesitancy in asserting that this continuation of the temperature after heroic doses of quinine was due to the presence of Malta fever. On reference to the chart it will be seen that the temperature shows a marked quotidian character, there being a daily rise and fall, much resembling that found in many cases of tuberculosis. The highest point reached at any time was 104° F., but most of the time the temperature did not go above 102° .

The patient gradually convalesced and was discharged from the Hospital on October 19, after a week's normal temperature.



Thermograph of Cases of Tertian Estivo-Autumnal Malarial and Malta Fever.
Private Gustav T. W. Schmidt, Hospital Corps, U.S. Army.



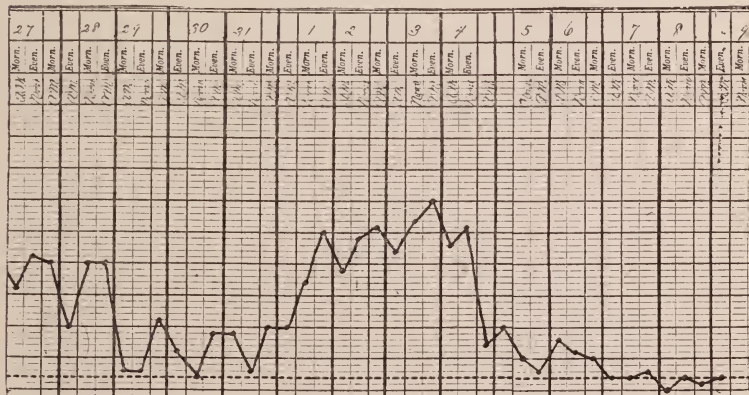
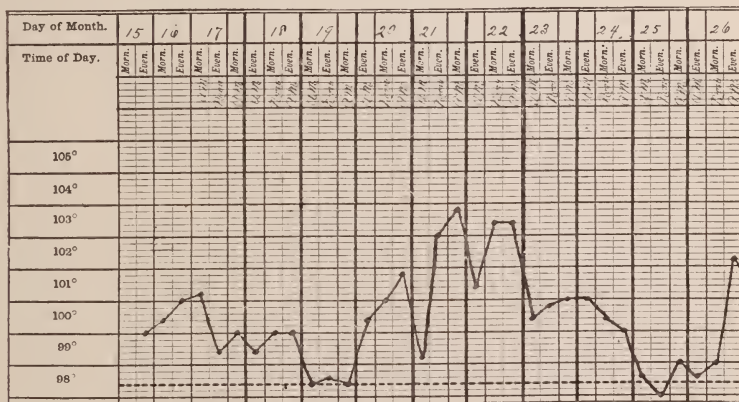
Thermograph of Case of Tertian Estivo-Autumnal Malarial and Malta Fever
Private Gustav T. W. Schmidt, Hospital Corps, U.S. Army.—Continued.

The symptoms complained of during the time in which the malarial parasites were absent from the blood were those of pains in the joints and feeling of marked malaise and considerable frontal headache. Patient appeared anemic, the skin of a yellowish hue, and he became considerably emaciated. At this time he also suffered from a slight nephritis, as shown by the examination of the urine.

There can be no doubt, I believe, that this attack was due to Malta fever, but was complicated at its commencement by malarial fever, which soon succumbed to the influence of quinine but which in no way affected the course of the Malta fever.

History of Second Attack: From October 19th to December 15th the patient remained comparatively well, although he complained at times of slight headache and chilly sensations, together with some pain, especially noticeable in the articulations. On the 15th of December he had a slight chill and was re-admitted to the Hospital with a temperature of 100° . An examination of his blood for ten consecutive days showed no evidence of malarial infection, but from the previous history of the case it was supposed that the temperature at this time was due to malaria, and large doses of quinine were administered. A request was not made for the Malta fever reaction until the 18th of January,

at which time the temperature had reached normal. At this time the reaction was positive at once in a dilution as high as 1 to 250. This reaction was repeated several times and was always found positive, and immediately cleared up the doubt which had attended the case from the commencement of the first attack.



Thermograph of Second Attack of Malta Fever in Case of Private Gustav T. W. Schmidt, Hospital Corps, U. S. Army.

The symptoms complained of during the second attack were similar to those of the first, there being marked pains in the joints, considerable headache and furred tongue and a markedly

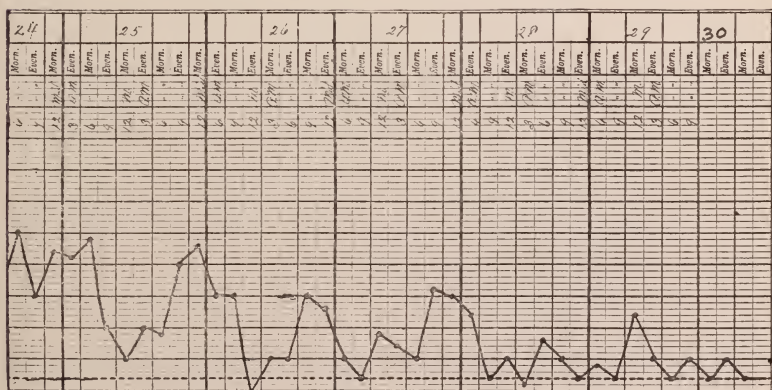
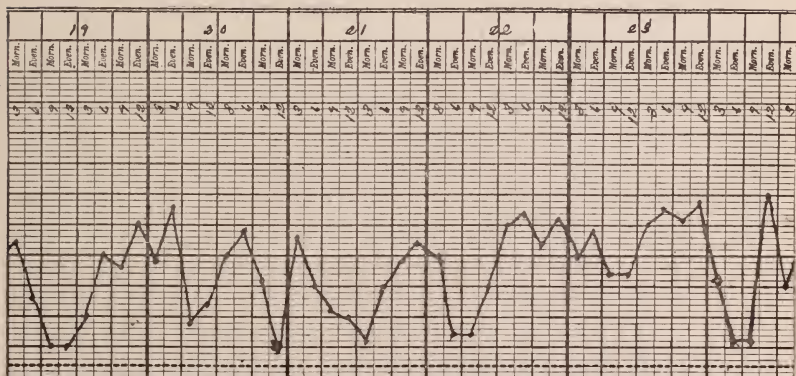
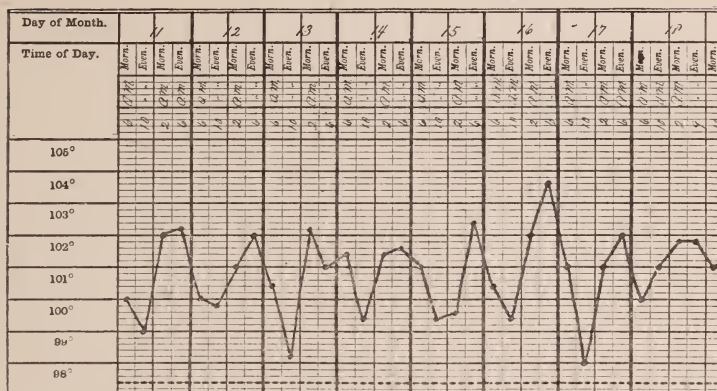
anemic countenance. From a consideration of the thermograph of the second attack it will be seen that the temperature during this attack differed markedly from that of the first. During the first attack the temperature was markedly quotidian in character, while during the second the temperature stayed above normal for from five to seven days.

These two charts illustrate remarkably well the irregularities of the temperature in Malta fever during different attacks of the disease, and of how comparatively little value the temperature chart is in these cases. During the second attack the patient had no signs of nephritis, and this attack was not as severe or as long continued as the first. Patient was discharged from the Hospital on the 19th January, 1902, having had a normal temperature for two weeks. Since that time there has been no repetition of the attacks but he has complained considerably of stiffness in the joints and slight chilly sensations.

There can be no doubt but what this infection was contracted prior to the patient's arrival at this Hospital, as he gives a distinct history of similar attacks in the Philippines, which were considered, however, of malarial character, the blood never being examined. The occurrence of malaria together with the first attack further obscured the case, and led naturally to the inference that these attacks of fever were in fact due to malarial infection. This case shows the importance of blood examination and use of the agglutination test for Malta fever in the obscure fevers which are prevalent in the orient.

CASE 2. C. H. M., Musician, Co. D, 27th Infantry. Age 23 years. American.

History Previous to Admission: Patient gave but little history previous to admission, save that of suffering from malaria in the Philippines. He had several attacks of slight chills followed by fever, general pains and severe headache while campaigning, and was diagnosed as a case of malarial cachexia. He was on sick report four or five days before admission to this Hospital, at the Presidio complaining of pains in the left hypochondriac region.



Thermograph of a Case of Malta Fever in Musician Charles S. Mills,
Co. D, 27th Infantry.

History after Admission: On admission patient complained of severe pains in the lumbar muscles, tenderness upon pressure over the spleen, and headache. There was considerable cough present. Bowels constipated, and there were some mucous rales heard at the base of the right lung. The patient had an irregular temperature previous to admission, and on January 7th had a distinct chill, the temperature reaching 103° . An examination of the blood was negative for malaria. From this time the temperature stayed above normal until the 17th of January, as will be seen on referring to the thermograph. On the 14th a Widal test was requested, which was negative. At this time the temperature resembled that of typhoid fever very closely, although the patient had no symptoms referable to that disease, complaining mostly of pains in the back and slight headache. Upon the 16th of January a request was made for a Malta fever test, and a reaction was obtained almost immediately with a dilution of 1 to 100. This test was performed repeatedly afterward, until the patient's discharge from the Hospital, and was always positive. Upon referring to the thermograph in this case it will be seen that the temperature curve is irregular. The temperature from the 7th of January to the 17th staying above normal and resembling that of typhoid, while after the latter date the temperature became more irregular, there being a daily remission, thus approaching the quotidian character shown in chart No. 1. The patient ran a temperature from January 7 until January 31, and was then returned to duty after the temperature had remained normal for several days. This infection was undoubtedly contracted in the Philippines, as the patient had been entirely well until his arrival in the Islands, and there suffered from attacks which he said were similar to the present one. The chief symptoms complained of were muscular pains, especially prominent around the articulations, and slight headache. Bowels were constipated and considerable anemia developed during the attack.

CASE 3. J. M. Sergeant, 4th Infantry. Age 24 years. American.

History previous to Admission: On conversation with the patient he said he had suffered from several so-called malarial

attacks in the Philippines, lasting from one week to three, although they were treated vigorously with quinine. There can be no doubt that these attacks were not malarial in character and were probably due to Malta fever.

History after Admission: Patient appeared in good flesh but was somewhat anemic. He complained of constipation, there having been no bowel movements for several days. Besides constipation there was some tenderness in the region of the gall bladder, and the patient said that he had suffered severely from muscular pains in the lumbar region and pains in the joints. Physical signs negative. Patient was admitted to Hospital January 21, and complained of constipation. At the time of admission the temperature was 102° , but an examination of the blood did not show any malarial infection. On January 24 a request was made for a Malta fever test, and an immediate reaction was obtained, very marked, with a dilution of 1 to 100. This reaction was repeatedly confirmed during the patient's stay in the Hospital. From the 21st of January to the 29th the patient ran a low temperature, never above 102° , and generally between 101° and normal. He complained mostly of pains in the joints. Tongue appeared fairly clean. There were no physical signs whatever which could be considered characteristic.

On February 5th patient was discharged from Hospital, having had a normal temperature since the 29th of January. I have not reproduced the temperature chart in this case, as it is uninteresting showing simply a low, quotidian temperature curve entirely uncharacteristic. The case is of value, however, in showing the unreliability of the temperature chart in Malta fever.

CASE 4. N. S. L. Artificer, 4th Infantry. Age 23 years, American.

History previous to Admission: Patient suffered from repeated attacks of so-called malaria in the Philippines, having chills, severe muscular pains and headache, these attacks lasting from one to two weeks. Patient's blood was never examined, but the attacks simulated those of malaria so closely that they were considered to be of that character. Quinine was given in large doses but had no effect on the fever.

History after Admission: Patient was admitted to this Hospital January 24, 1902, with a temperature of 103° , and complained of severe headache, backache and pain over the spleen upon pressure. There was a history of decided chill. He appeared anemic and jaundiced and was constipated. Said that he had had similar attacks in the Philippines. An examination of the blood on the 26th was negative for malaria, but gave a marked reaction with the micrococcus melitensis in a dilution of 1 to 100. Patient's temperature reached normal on the 26th, although no quinine had been given, and remained normal until the 4th of February, at which time patient had a slight chill, temperature reaching 103° , and showed a quotidian reaction for a period of five days after. It remained normal until he was discharged on the 19th. During this time the patient did not appear to be very sick, the only thing complained of being pains in the joints. The temperature chart is not reproduced as it is not of especial interest.

In considering the four cases noted it will be seen that the first two cases are those of acute exacerbations of Malta fever in which the patient runs a temperature for a considerable length of time, while the latter two cases are characteristic of the chronic form of the disease, in which the temperature is but little above normal, and the chief symptoms present are those of articular rheumatism. Both of the latter cases would have been diagnosed as cases of articular rheumatism had it not been for the Malta fever reaction.

METHODS OF PERFORMING SERUM TESTS FOR MALTA FEVER.

The serum test for Malta fever was first described by Wright, of the Royal Army Medical School at Netley. The methods of performing the test vary somewhat but the principle is the same in all. He discovered that the serum of Malta fever cases had the power of agglutinating the micrococcus in suspension, and that this reaction took place earlier than the Widal reaction and in much more dilute solution.

Wright's Method: Sedimentation tubes having a diameter of less than 1 millimeter and an agar culture of the micrococcus are used in making the test. A salt solution suspension is made, and this solution is used to dilute the blood serum, the dilution vary-

ing according as the test is desired to be more or less delicate. It makes no difference whether the micrococci are alive or dead, the agglutination reaction taking place as well with one as the other.

Curry's Method: Curry's method of performing the test as described by him (Malta Fever, *Journal of Medical Research*, Vol. 6, No. 1) differs somewhat from that of Wright, and is thus described by him. I used common glass tubing about three to four mm. in diameter, and made the observations macroscopically, and as a control made microscopical observations of drops of the fluid withdrawn by means of a platinum loop from the top, middle and bottom of the tube. Tubes 7.5 cm. long and 3 to 4 mm. in diameter were made from glass tubing and the bottoms were drawn out to a long, sharp point. These were sterilized and plugged with cotton in the dry sterilizer. Salt solution suspensions were made according to the method used by Wright. Bacteria were killed by heat at 60° C. for 15 minutes, and 0.5% carbolic acid added. As a routine method one drop of blood serum were mixed with nineteen drops of normal salt solution, then equal parts of this mixed with the salt suspension of the culture of the micrococcus melitensis and placed in the small tubes of the sterile pipette. This with dilution of 1-40. A reaction was called positive and complete only when, in addition to the precipitation of the bacteria in the bottom of the tube, the supernatant fluid became clear.

Author's method: In performing the serum test for Malta fever I have used practically the same method as that used for making the Widal test. A pure culture of the micrococcus, either upon agar or in bouillon, was used. The test may be performed either with the fresh serum or with a dry drop of blood, the latter being used preferably as it is simpler and easier to procure. A drop of blood is secured upon a glass slide and diluted with enough sterilized water to dissolve it. A graduated pipette of very small caliber is used to make the dilution with the micrococcus. Having dissolved the drop of blood a known portion is taken from it by the pipette and placed upon a clean slide. This is then diluted with a measured quantity of the bouillon culture, or with a suspension of the agar culture made with sterilized water. The

pipette is so graduated that a dilution can be made from 1-10 to 1-150. A cover glass is then placed over the mixture and this examined microscopically. In using the agar suspension, the drop should first be examined so as to be sure there is no agglutination present before the blood is added. Preferably I have used a dilution of 1-75, although the agglutination reaction has been obtained with dilutions as high as 1-250 immediately. This method is easy of performance, all that is needed being the culture, the special graduated pipette and the cover glasses and slides, and the drop of blood. The method was used in all the cases described, and controls with a serum of either disease made at the same time; and it was found perfectly reliable.

LITERATURE.

The literature concerning the appearance of Malta fever among soldiers of the United States Army is very limited. The first case described was that of John H. Musser, of Philadelphia, in the *Philadelphia Medical Journal*, December, 1898. His case was that of an officer who contracted the disease in Porto Rico, and he was the first to draw attention to the fact that the disease was probably endemic in that island.

In the report of the Surgeon General of the Army for 1899, Walter Cox described a case occurring in Porto Rico and observed by him. The patient was a private of the Hospital Corps, thirty years of age. He came under observation January 14, 1899. He contracted the fever in the guard house of an old Spanish barracks, the fever commencing January 11, 1899. He complained of pain all over the body, especially in the bones and joints. Had two chills on successive days but none afterward. This was at the commencement of the illness. The appetite was poor and the bowels were first loose and later constipated. The temperature curve showed daily remissions and reached normal gradually. The morning temperature for a considerable time reached the normal point, but was 1, 2 or 3 degrees above normal toward evening. He was discharged from the Hospital on April 3d, after about a week of normal temperature, but was re-admitted April 7th suffering again from fever. This attack was similar to the first. The blood was examined repeatedly for the malarial para-

sites, as well as for the Widal reaction. A test with a culture of the micrococcus melitensis showed a marked agglutination in dilutions as high as 1-60. Chamberlain, while on duty on the Hospital ship "Relief," at Manila, P. I., observed two cases of the disease in soldiers, which were reported to the Surgeon General of the Army. The men were in adjacent beds and both presented mild attacks. The temperature curve was irregular, being markedly remittent nor undulating. The cases were first diagnosed as malarial fever, but the Malta fever reaction was performed at the laboratory of the First Reserve Hospital and both were found positive. Examination of the blood for malarial parasites and the use of the Widal test both resulted negatively. Curry and Strong in 1900 reported cases occurring at the First Reserve Hospital. Strong performed an autopsy upon a man who had died from a continued fever of long duration. The postmortem showed that it was neither typhoid nor malaria and cultures from the case made by Curry resulted in the finding of the micrococcus melitensis. Inoculations into monkeys produced the typical symptoms of Malta fever. While performing these experiments Strong became infected and suffered from a typical attack of the fever. In another case the condition was discovered postmortem and cultures were obtained of the micro-organism. At this time two cases were observed in the Wards of the Hospital which gave the reaction with the micrococcus and were undoubtedly cases of Malta fever.

The most valuable report on Malta fever occurring in soldiers of the Army is that written by Curry and published in the *Journal of Medical Research*, Vol. 6, No. 1. In this report Curry describes the cases which have come under his observation both in Manila and in the Army and Navy General Hospital at Hot Springs, Arkansas. Besides the four cases of Malta fever observed in Manila, he observed in all eight cases of Malta fever in the Hospital at Hot Springs. Four of these are described in extenso, the notes of the other four cases occurring in a note at the end of the report. All four of the latter cases were in a convalescent stage, the prominent symptoms being those of articular rheumatism, constipation and frequent profuse sweatings. These

cases were all diagnosed as articular rheumatism. Of the four cases described more fully, all gave a marked serum reaction with the micrococcus melitensis when in a dilution as high as 1-300. None of the cases presented the symptoms found in the acute stage. The symptoms complained of were pains in the articulations, constipation and sweating, and all showed anemia. These cases were all supposed to be suffering from chronic articular rheumatism.

In his recapitulation Curry says "We have four cases of what was thought on admission to be chronic rheumatism. These cases have not improved under treatment nor by change to this favorable climate. Neither anti-rheumatic nor anti-malarial treatment has benefitted these men. In spite of treatment and favorable conditions repeated and more or less regular recurrences of acute rheumatic pains and swellings and of fever have taken place. These conditions have lasted a long time, from six months the shortest, to sixteen months the longest of the series. The other prominent symptoms have been anemia, profuse sweatings and constipation. The blood examinations for malarial fever and typhoid were negative, save in the case of one who had severe typhoid fever two years ago. The clinical history of these cases corresponds with that of Malta fever, and the result of the serum test with the micrococcus makes it certain that the diagnosis of Malta fever in these cases is a correct one."

The important lesson to be learned from a study of the literature of Malta fever occurring in the United States Army, and from the study of the cases described in this report, is that the condition is one not easily recognized clinically, and one apt to be mistaken for typhoid, malaria, or in the chronic stage for articular rheumatism. This being so, the great value of a microscopical examination of the blood and the performance of the serum test is at once proven. None of the cases observed by me were diagnosed as Malta fever, and in only one of them was there any suspicion of the occurrence of this disease. The two cases presenting the chronic symptoms would, in all probability, have been transferred to Hot Springs, Ark., for anti-rheumatic treatment, while in the two cases presenting the acute symptoms the

patient would probably have been treated for either malarial or typhoid fever. In fact in cases when, on account of finding malarial parasites at different times in the patient's blood the treatment had been altogether that for malaria, and had a diagnosis of Malta fever been made more quickly much discomfort would probably have been saved the patient.

The following conclusions may be drawn from the study of these cases:

1st. There occurs in the Tropics a fever which may resemble in its acute stage either typhoid or malaria and in its chronic stage articular rheumatism, caused by the micrococcus melitensis.

2d. There are no pathognomonic symptoms of Malta fever. The symptoms observed are so inconstant and confusing that no one of them can be said to be typical of the disease.

3d. A differential diagnosis of this fever is almost impossible in the majority of cases without the aid of the microscope and the serum test.

THE HEALTH OF RUSSIAN TROOPS IN THE RUSSO-JAPANESE WAR.

THERE have been so many conflicting statements with regard to the health of the troops in the Orient that the following facts from the Russian "Official Messenger" are of particular interest although not of the most definite character. "Up to June 26th the number of officers and men in hospital amounted to 7.136 per cent. and 3.943 per cent. respectively of the total forces. If the wounded officers and men already removed to the rear are included, the percentage is 10.24 and 6.51. After the beginning of the rainy season—on July 9th—the percentage of officers and men in the hospitals rose to 8.384 and 4.646 respectively, the proportion of patients suffering from infectious diseases increasing from 2.19 per cent. to 8.52 per cent. including a percentage of dysentery cases of 1.99."

AMPUTATION OF THIGH AFTER GUNSHOT WOUND.

By CAPTAIN FREDERICK H. SPARRENBERGER,
LATE ASSISTANT SURGEON OF UNITED STATES VOLUNTEERS.

IN July 1900, I was surgeon of the expedition, under Lieutenant Colonel James Parker, that went from Nueva Caceres to San Jose de Lagonay, Camarines Province, Luzon, and while at San Jose de Lagonay, a native who had been wounded by one of our men, was sent to me for treatment; he reached me five days after having been wounded.

He was hit in the right thigh, 3 inches above the knee, and when I saw the case, gangrene was present; I informed him amputation was necessary and he submitted after a slight hesitancy.

I had him anesthetized by a private of Co. K 45th Infantry, who, due to the fact, that he had had one year's experience in a civil hospital as orderly, was detailed as acting Hospital Corps man; and who had never given, or seen given, an anesthetic, and assisted by Lieut. Tyner, now 2nd Cavalry, I amputated the limb at the upper third.

The patient rallied very readily and three days after amputation, I had him removed from hospital, on account of being crowded for room, to a native shack in town, and would go there to treat the case.

One week after removal from the hospital the owner of the shack reported that the patient had escaped during the night, by raising the bamboo floor of the shack, and dropping to the ground four feet below, where his trail was found, leading to the road and there lost.

Six days later he was discovered, by the native police, in a cocoanut grove three miles from town; he had crossed rice paddies, a creek, and a hemp grove. The policemen brought him back to headquarters on the back of a dirty, sweaty pony, which was afflicted with glanders, no bandage on the stump, the sutures all torn out, and the flaps of the stump gaping and wide open.

I cleaned up the wound, brought the flaps together by adhesive plaster strips and bandages, and within 30 days discharged him, the stump nicely healed, but with a great ragged scar,—and in all this time there was not one drop of pus!

Two weeks later, his wife called on Col. Parker, and informed him, that she did not want her husband any more, as he had only one leg and could no longer earn a living for her, and requested the Colonel to straighten out the matter, demanding aid from the United States, as her husband had been shot by an American soldier, and his leg amputated by an American Medico.

The surprising part of the case was the entire absence of pus, 6 or 7 days after amputation patient traveled 3 miles, by raising his body on his hands, bringing it forward, resting on his buttocks, then bringing his body forward again, and so on; and in this manner crossed rice paddies, which were then being irrigated, crossed a creek, went through a hemp grove, thick with underbrush, was gone six days, was brought back on a dirty pony, with the open wound rubbing the back of the pony, with no treatment, saving the application of banana leaves, which patient himself applied to cover the wound, and in the face of all this exposure, there was no pus.

WOUNDED RUSSIAN SAILORS AT HONG KONG.

DURING my stay at Hong Kong I visited, with Dr. Atkinson, the principal medical officer of the colony, the wounded Russian sailors who had just come down from the action at Chemulpo. They were in the General Hospital and were all doing well. Their injuries were mostly shell wounds from splinters. One case only was serious, and in this instance the tissues of the forearm had been much torn up by a flying fragment. The men were all of exceptionally fine physique, and they lost no opportunity of expressing their satisfaction with their surroundings. The sisters said they made exceptional patients, and it was wonderful how easily everything was managed, considering that their language was intelligible to none.—*Sir Frederick Treves.*

THE UNITED STATES ARMY GENERAL HOSPITAL,
AT THE PRESIDIO, OF SAN FRANCISCO,
CALIFORNIA, 1901-1902.

BY COLONEL ALFRED C. GIRARD,
ASSISTANT SURGEON GENERAL IN THE UNITED STATES ARMY.

Part 4.

3. SURGICAL WORK OF THE HOSPITAL.

SURGICAL CASES treated during the fiscal year ending June
30, 1902.

Hernia, (a) Inguinal.....	96	
(b) Ventral.....	8	
(c) Umbilical.....	2	
	<hr/>	
Total.....		106
Varicocele, (a) Right.....	2	
(b) Left.....	33	
	<hr/>	
Total.....		35
Hemorrhoids.....	40	
Fistulae in ano.....	12	
Appendicitis.....	27	
Empyema.....	18	
Gunshot Wounds, Head.....	4	
Face.....	2	
Shoulder.....	2	
Elbow.....	3	
Forearm.....	7	
Hand.....	12	
Abdomen.....	1	
Chest.....	1	
Hip.....	2	
Thigh.....	10	
Leg.....	10	
Ankle.....	2	
Foot.....	4	
	<hr/>	
Total.....		58

Fractures, Skull.....	6	
Clavicle.....	4	
Scapula.....	2	
Humerus.....	7	
Elbow.....	3	
Olecranon.....	1	
Radius.....	8	
Spine.....	3	
Ribs.....	3	
Inferior maxilla.....	4	
Metacarpal.....	4	
Phalanges.....	6	
Femur.....	7	
Ilium.....	2	
Patella.....	3	
Tibia and fibula.....	9	
Os calcis.....	1	
Metatarsus.....	4	
Nasal bones.....	6	
Total.....		83
Dislocations, Hip Joint.....	2	
Ulna.....	3	
Phalanges.....	2	
Humerus.....	1	
Knee.....	1	
Total.....		9
Wounds, Lacerated.....	11	
Incised.....	8	
Infected.....	12	
Punctured.....	7	
Contused.....	8	
Bolo.....	10	
Granulating.....	3	
Total.....		59
Burns.....		5
Abcesses, various regions.....		49
Ulcers, various regions.....		15
Mastoiditis.....		3
Adenitis, Inguinal, Nonspecific.....		8
Cervical.....		9
Total.....		17

Cellulitis, various regions	11
Talipes varus, acquired	2
Myelitis	2
Periostitis	8
Carbuncle	3
Hepatic abscess	10
Peritonitis, Tubercular	1
Ankylosis, various joints	15
Epididymitis, Traumatic	2
Stricture of esophagus	1
Gingivitis	1
Bursitis	1
Synovitis, Chronic and Acute	9
Floating cartilage, knee	3
Necroses	4
Epilepsey, Traumatic	1
Tumors, Cystic	6
Fibroma	1
Exostoses	3
Scirrhus carcinoma	2
Epithelioma	2
Adeno-sarcoma	2
Sarcoma	5
Osteo-sarcoma	1
Carcinoma	5
Total	27
Varicose veins	10
Hydrocele, Traumatic	4
Meningomyelitis	1
Ingrowing nail	12
Biliary fistula	2
Fecal fistula	2
Urinary fistula	2
Rectal stricture	1
Prolapsus rectum	3
Undescended testicle	1
Atrophy of testicle	1
Cerebral concussion	2
Ganglion, foot	1
Arthritis, Tubercular	2
Sprains, various regions	24
Trauma, back	2
Division of tendon	1
Vaccinia	7

Lymph, scrotum	1
Pes planus	3
Prostatectomy	2
Vesical calculi	2
Total	723

The following is a list of the principal operations performed at the Hospital for the fiscal year ended June 30, 1902, operator Colonel A. C. Girard:

	No. of Cases.
Herniotomies	57
Inguinal	53
Ventral	2
Umbilical	2
Varicocele	35
Right	2
Left	33
Appendectomies	23
Resection of rib for empyema	7
Pleurisy with effusion	6
Hemorrhoids	31
Fistulae in ano	3
Stricture of rectum	2
Exploratory abdominal sections	6
Perineal section for urinary fistula	1
Craniectomies	4
Traumatic epilepsy (Bolo wound)	1
Gunshot wound of the skull	1
Depressed fractures	2
Enucleation of Eye	2
Perineal cystotomy for Vesical calculus	1
Castration	3
Hydrocele, Traumatic	4
Amputations	18
Toes	7
Foot	1
Leg	3
Thigh	1
Hip joint	1
Fingers	3
Hand	1
Breast	1
Tumors	12
Carcinoma of the parotid gland	1

Carcinoma of colon.....	1
Fibroma of abdominal wall.....	1
Sarcoma of testicle.....	3
Epithelioma of gums.....	1
Epithelioma of prepuce.....	1
Cystic tumor of popliteal space.....	1
Exostosis, orbital plate, frontal bone.....	1
Exostosis of femur.....	1
Osteosarcoma of femur.....	1
Cholecystomies.....	3
Cholecystitis.....	1
Cholelithiasis.....	2
Enterorrhaphies.....	4
Malignant growth of colon.....	1
Fecal fistulae.....	3
Cholecysto-enterostomy.....	1
Floating cartilage of knee.....	1
Skin grafting of chronic ulcer.....	1
Varicose veins of leg.....	5
Prostatectomies.....	2
Tendon suturing.....	1
Tenotomy for acquired talipes varus.....	1
Resection of ulna.....	1
Fractured patella (wiring).....	1
Fractured clavicle (wiring).....	1
Osteotomies.....	2
Re-amputation of stump of spermatic chord.....	1
Trachelorrhaphy.....	1
Curettement of uterus.....	1
Ingrowing nails.....	12

Hemorrhoids: The principal steps preparatory to operation were as follows:

Patient was confined to bed at least twenty-four hours prior, given a hot bath, the operation area shaved, scrubbed with tincture of green soap and flesh brush, then with 1 to 1000 bichloride solution, and a moist bichloride dressing applied. The night previous, fractional doses of calomel were administered, followed by 1 oz. of tartrate of soda and potash. On the morning of operation patient was given three successive rectal enemata.

After anaesthetization, patient being placed in lithotomy position, the parts were washed thoroughly again with green soap and water, ether and alcohol. Sphincter was thoroughly stretched,

and a sponge introduced into the rectum through a cylindrical speculum, with a string tied to centre of sponge to permit of traction in order to evert the hemorrhoidal masses. Hemorrhoids were seized with anatomical forceps and circular incisions were made at the muco-cutaneous junctions. Catgut ligatures were applied to pedicles and excess of tissue was removed with scissors. The mucous membrane was then sutured to skin with interrupted catgut. The rectum was irrigated with normal saline solution. Iodoform suppositories were inserted within the rectum, a rubber drainage tube wrapped in spindle-shape with strips of iodoform gauze was introduced, allowing one end to protrude from the anus. The dressing was completed by gauze compress and T bandage. Patient was put to bed, kept on liquid diet, and bowels confined for five days by administration of opium. Then free catharsis obtained on fifth day by castor oil.

All cases made an uninterrupted recovery with excellent result. No secondary hemorrhage occurred. Operation proved radical cure so far as could be traced.

Appendectomies: Of the twenty-three cases operated upon, four were ulcerative, four presented abscess formation, three perforation with abscess, two were gangrenous and ten were acute and chronic catarrhal.

In the acute cases a rise in temperature usually ushered in the attack. Pain after eating, at first colicky and referred to the epigastrium, later becoming localized at the site of appendix. Tenderness was always present, pain of greatest intensity being over the appendix, right-sided rigidity of rectus abdominis muscle and most marked over the inflamed area. Vomiting at the onset was very common. In the chronic cases localized pain and tenderness were the most prominent symptoms, with very slight rise in temperature if any, and very often a subnormal temperature existed. Cessation of pain and fall in temperature indicated either gangrene or abscess formation. Leukocytosis could not be relied upon as a characteristic symptom, except in cases where pus had not been walled off from the peritoneal cavity. Dullness and the presence of the tumor could be detected when the inflammation and effusion was localized, and near the surface.

Some of the worst cases, however, did not present any evidence of tumor. The operation in all cases not requiring drainage was as follows:

Skin incision 1 to 1½ inches in length was made in the direction of the fibers of the external oblique, the middle of incision corresponding to the intersection of two lines, one drawn between the umbilicus and the anterior superior spine of the ilium, and the other drawn from the middle of and at right angles to Poupart's ligament. The abdominal cavity was opened by the gridiron incision, i. e.; dividing the separate layers in the course of their fibres. When the peritoneal coat was reached it was raised with forceps, to avoid injury to the intestines, and abdominal cavity then opened. In most cases where there was a simple catarrhal condition, or where there were no adhesions, no difficulty was encountered in the delivery of the appendix. The appendix was drawn into the mouth of the wound, the cecum protected with sterile gauze, and the appendix amputated by means of the thermo-cautery. The stump was invaginated by purse-string silk suture, and the whole covered with a small portion of the meso-appendix lightly tied over the invagination. The cecum was returned to the abdominal cavity, the peritoneum closed with purse-string catgut suture, the sheath of the rectus and internal oblique and external oblique united separately by continuous catgut. Deep and superficial fasciae were sutured separately with continuous catgut, and skin united without drainage by intercuticular silkworm gut introduced subcutaneously. A dry absorbent dressing was applied and held in position by strips of adhesive plaster, and the entire dressing covered with sterile towels, and dressing completed by many-tailed abdominal binder and perineal straps.

In all cases where there was gangrene or abscess formation, the abscess cavity, after evacuation and securing the stump of the appendix with purse-string suture introduced in the cecum about its base, the cavity was irrigated with the normal saline solution, and then the wound was dressed openly, packing the cavity with strips of iodoform gauze, allowing it to granulate from the bottom. As far as known no ventral hernia has occurred in any case.

Herniotomies: Of the fifty-seven cases operated upon, fifty-three were inguinal, two were ventral and two umbilical. Of the cases of inguinal, five were recurrent cases, which had been operated upon in the Philippines and where there had not been primary union; forty-three were single and five double. Nine were direct and forty-four indirect. Twenty-four were incomplete. The majority were acquired, a large number existing without the knowledge of the soldier until re-examination by the surgeon. The causes producing or predisposing were trauma, heavy lifting, prolonged marching or difficult mountain climbing and lowered tonicity of the general muscular system from some previous illness. None were irreducible (except small portion of the omentum adherent to sac in a few cases), incarcerated, inflamed or strangulated. Of the ventral cases, one was an epigastric hernia, which is very rare, the omentum being adherent to the abdominal wall and giving rise to considerable discomfort when standing, by dragging on stomach and colon. In this case there was an absence of a distinct external tumor.

In the inguinal herniae the following conditions of sacs and contents were noted:

One sac was double; in two cases no sac was apparent; the contents of five cases were adherent; fourteen contained omentum and three intestinal contents, one case containing both omentum and intestine; four cases presented a large amount of preperitoneal fat, and in four cases there was a small hydrocele of the cord at the head of the hernial sac. The majority of sacs were found empty at the time of operation.

In the ventral and umbilical herniae an elliptical incision was made through the abdominal wall, contents of sac reduced, the omentum freed and the abdominal wound closed by purse string catgut suture through the peritoneum, and buried silver wire closing the wound in muscles. Skin incision united by intercuticular silkworm suture subcutaneously.

The operation of the inguinal cases was as follows:

A linear incision $2\frac{1}{2}$ inches in length was made in the course of the fibres of the external oblique, beginning on a level with the anterior superior spine of the ilium, parallel to and $\frac{1}{2}$ inch

above the ligament. Incision was carried downward through skin, superficial and deep fasciae and aponeurosis of the external oblique, the aponeurosis being divided about $\frac{1}{2}$ inch above the internal abdominal ring. Cut edges of aponeurosis were held with forceps and dissected free from underlying muscles as far as the rectus sheath internally and down to the deep portion of the ligament externally. Sac and cord were isolated en mass by blunt dissection with the fingers. The cord, with its vessels, was then separated from the hernial sac by blunt dissection, and held aside with strip of sterile gauze. Sac was freed up to the internal abdominal ring, opened, contents were examined, and in cases where the omental contents were adherent this portion was removed; the remainder of the contents being returned to the abdominal cavity, ligature applied to the neck at the internal abdominal ring and the fundus excised. Further reinforcement of the opening in abdominal wall was secured by suturing neck of sac. Five interrupted catgut sutures were introduced with blunt-pointed needles beneath the cord from within outwards, through the internal oblique, transversalis and transversalis fascia and the deep portion of Poupart's ligament, the lowermost suture embracing the conjoined tendon. The cord was returned to the canal and the aponeurosis of the external oblique was united by interrupted catgut suture. The deep and superficial fasciae were sutured separately with continuous catgut, and the skin incision closed without drainage with intercuticular subcutaneous silkworm gut suture. An absorbent dressing, held in position by strips of adhesive plaster, and a many tailed abdominal binder applied.

The patient was kept on a liquid diet for five days. The skin suture of silkworm gut was removed on the 14th day, patient confined to bed for twenty-eight days, and required to wear a special abdominal binder the invention of Col. A. C. Girard, for at least one year after discharge from Hospital.

Sarcoma of testicle: All three cases were in men who were comparatively young, ages being twenty-five, twenty-seven and thirty-four years respectively. Causation in two cases was injury on pommel of saddle while riding. The third case was due to fall while on an expedition in the P. I. All showed rapid and ma-

lignant growth after the injury. Symptoms of dull aching pain and cachexia and emaciation. All cases were complicated by large effusion into the tunica vaginalis. The microscopical examination of specimens revealed two to be of the cystic and one a small round celled sarcoma. Sufficient time has not elapsed since the operations to report as to metastases in the internal organs.

Varicocele: The operation resorted to in all cases was the suprapubic. Incision of one inch over the external abdominal ring through skin, superficial and deep fascia to the cord. The cord was raised and the dilated veins isolated by blunt dissection from the vas deferens and its vessels, and section of two or three inches removed after the application of two catgut ligatures. The ends were tied together and the stump anchored to the external pillar of the external ring. The skin wound was closed by suturing deep and superficial fasciae separately with continuous catgut, and the skin by intercuticular, subcutaneous silkworm gut.

Patient confined to bed for ten days, and required to wear a suspensory bandage on discharge from Hospital. All cases did well. No case reported of atrophy of testicle following operation.

4. BACTERIOLOGICAL LABORATORY.

The following Circulars of Information concerning the work of the Pathological and Bacteriological Laboratory have been issued during the year.

GENERAL RULES OF LABORATORY.

As the Circulars and Orders concerning the Laboratory work of the Hospital are scattered over a period of two years, it has seemed well to the Commanding Officer to gather them together in a compact form for the convenience and information of the Medical Officers and others concerned. The following circular has, therefore been compiled, and it is hoped that it will prove of value in assisting the scientific investigation of disease in this hospital.

1. Medical Officers on duty at this Hospital are urged to make the fullest use of the facilities offered them for bacterio-

logical and pathological research in connection with their clinical work.

2. Wherever possible, the clinical diagnosis will be verified by the Pathologist—as in cases of pulmonary tuberculosis, malaria, amoebic dysentery, etc., and whenever such confirmations cannot be obtained, the fact will be stated on the diagnosis card.

3. The pathological blank must be filled out complete and accurate in every detail before being sent to the Pathologist; especial attention should be paid to remarks concerning “previous attacks of typhoid or malaria”, and as to “clinical diagnosis and prominent symptoms.” The report, when returned to the Ward Officer, should be filed with the records of the case.

4. Specimens of urine, faeces, sputum, etc., must be accompanied by the proper printed slip securely fastened to the bottle so that identification may be assured; these will be sent to the Laboratory not later than eight o'clock a. m., except in cases of emergency.

5. On Sundays, and after the regular hours for examination on other days, examinations will be made in the Laboratory, but, in such cases, the word “Special” will be written upon the blanks used for such examinations by the Ward Surgeon.

EXAMINATIONS OF BLOOD.

1. The blood of every patient admitted to this Hospital is to be submitted to the Pathologist for examination. If nothing abnormal is found, the first examination will be considered sufficient, unless a request is made for another by the Pathologist or by the medical officer in charge of the case. Where the malarial plasmodium is found, or any other abnormal condition, the blood is to be re-examined as often as the Medical Officer in charge of the case considers necessary.

2. Requests for blood examination should be sent to the Laboratory before 10 o'clock A. M.

3. All cases entering this Hospital with a diagnosis of malarial fever, malarial cachexia or in which malarial infection is suspected should not have the blood examined until at least a week has elapsed after entry, unless active symptoms are present be-

fore that time. Quinine should not be administered to any such case until the blood has been examined and the diagnosis confirmed by the Pathologist, except in pernicious cases or where, owing to some complication, quinine is necessary.

4. The attention of the Medical Officers at this Hospital is called to the large number of patients whose blood examination shows malarial parasites, but in which no clinical signs are present. Since August 20th, 1900, there have been over 150 such cases. As it is hardly probable that in so large a number there has been no rise of temperature during the twenty-four hours, it is recommended that, when possible, the temperature of all patients giving a history of malarial infection be recorded every four hours, as in the malarial fevers of tropical origin the morning and evening temperature cannot be relied upon.

5. In suspected cases of syphilis the "Justus test" should be requested. This test has been proven of great value and is performed as follows: a haemoglobin estimation should be requested of the Pathologist and treatment by mercurial unctions begun immediately after the specimen of blood has been taken. At the end of twenty-four hours after the commencement of the treatment a haemoglobin estimation should be again requested, and if a marked reduction is present (10 to 40 per cent) the diagnosis of syphilis is justifiable. This test should be requested in all doubtful cases, including glandular enlargements of unknown origin. The blank requesting the examination should be marked plainly "For Justus test."

6. In all cases of continued fever of doubtful origin, especially if accompanied by pains in the articulations, in which the Widal test is negative, as well as the examination for malarial parasites, the serum test with the micrococcus of Malta fever, or micrococcus melitensis, should be requested. Requests for this test should be plainly designated "for Malta Fever."

7. In all suspected cases of typhoid fever the Widal test should be requested, with the designation "For Widal."

8. In all cases where suppuration is suspected an examination should be requested for leucocytosis, which, if present, as a rule indicates the presence of pus. It should be remembered

that a leucocytosis is present in many processes, as pneumonia, small pox, glanders, acute articular rheumatism, septic meningitis, cholangitis, cholecystitis, cystitis, gonorrhea, etc. In cases of appendicitis a leucocytosis often indicates pus formation, but not invariably.

In tuberculosis there is a marked leucocytosis, the eosinophiles especially becoming increased. In suspected cases examination of the blood is of great diagnostic importance. The request should state "For Leucocytosis."

9. In marked cases of anaemia, whether primary or secondary, a blood count should be requested, and in cases of suspected leukemia a count of the leucocytes should be asked for.

10. Requests for examination of the blood of cases suspected of suffering from any of the forms of malarial fever, should, whenever possible, be made between the paroxysms, when the parasites are most numerous in the blood. The parasites of malarial fever, especially the estivo-autumnal parasites, are least numerous in the peripheral blood during the chill, and examination of the blood at that time may often result negatively. If quinine has been administered the search for the parasite of malaria is generally fruitless, and should not be requested. The request should state "For Plasmodium."

EXAMINATION OF URINE.

1. The urine of every patient admitted to the Hospital is to be examined at least once; in cases which show no pathological condition of the urine, and which are not bed patients, the urine is not to be again examined, unless requested by the Pathologist or by the Medical Officer in charge.

2. In pathological urine and in the case of all bed patients, the urine is to be examined once a week unless (in case of emergency) a more frequent examination is considered necessary by the Medical Officer in charge of the case.

3. In all cases of septic poisoning and in cases in which there is suspected intestinal putrefaction, the indican test should be requested. The request should state "For Indican."

4. Clean bottles for urine can be obtained from the laboratory. Urine for analysis should be the first in the morning

and the last at night and should be brought to the laboratory before 8 A. M. Label each sample with name of patient and ward.

EXAMINATION OF SPUTA.

1. Hereafter all cases entering the Hospital suspected of or diagnosed pulmonary tuberculosis will have the sputum examination for six consecutive days, provided the bacillus of tuberculosis is not demonstrated. The first examination should be made as soon as possible after entry.

2. In sending such sputa to the laboratory for examination the Ward Surgeons will mark the blanks "Suspected Tuberculosis," and in all such cases the Pathologist will personally see that the required number of examinations are made upon consecutive days. If for any reason sputum cannot be obtained for examination, the Ward Surgeon will so notify the Pathologist.

3. In cases of suspected tuberculosis in which, even after repeated examination of the sputa, no tubercle bacilli are demonstrated, the Ward Officer should recommend transfer to Fort Bayard, provided the physical signs are sufficient to warrant the diagnosis.

4. In collecting sputum for examination, the following precautions should be observed. Always collect sputum which is first expectorated in the morning. Have the spit cup free from disinfectants. Never dilute the sputum with water. Never allow anything to contaminate the sputum, as tobacco juice, insects, etc. Instruct the patients in these particulars.

5. Specimens of sputa to be examined should be sent to the Laboratory before 8 A. M.

EXAMINATION OF FAECES.

1. The faeces of every case suffering from chronic dysentery or diarrhoea and having more than two bowel movements per day, will be submitted to the Pathologist for examination at least once and as often thereafter as he or the Medical Officer may direct.

This examination is for the purpose of determining whether or not the amoeba of dysentery is present and if so, that the proper treatment by quinine enemas may be at once instituted.

2. All cases showing the amoeba of dysentery, in the faces shall be diagnosed as amoebic dysentery, and the diagnosis so recorded upon the clinical history of the case and the diagnosis slips.

3. Faeces to be examined should be passed into a perfectly clean, warm bed pan, in which there is no antiseptic of any kind. In transferring faeces from the bed pan to the glass jars, it should be seen that the jars are clean and no water or antiseptic should be mixed with the dejecta. The specimens should be brought to the Laboratory at once, as delay makes an examination for the amoeba useless.

MISCELLANEOUS EXAMINATIONS.

In cases of suspected diphtheria a culture from the exudation in the throat should be requested and the suspected case isolated until the result is known.

A report of the work done in the Laboratory will be submitted to the Commanding Officer by the Pathologist at least every two weeks, and a yearly report at the end of the fiscal year.

TUBERCULOSIS IN SOME OF THE SCHOOLS FOR NON-COMMISSIONED OFFICERS IN NORWEGIAN FORTIFICATIONS.

IN the *Norsk Tidsskrift for Militærmedicin*, Captain Hans Daae observes that among three hundred and twenty-two pupils who entered the School for Artillery Non-Commissioned Officers, tuberculosis appeared in thirty-seven,—11.52 per cent. In one hundred and nineteen pupils who entered the Mining and Engineering School for Non-Commissioned Officers, tuberculosis appeared in 5,—4.2 per cent. The disease appeared in 48 per cent. of the affected persons between the ages of nineteen and twenty-one. 50 per cent. had been in attendance at the schools for one to two years when the disease was diagnosed. About 90 per cent. of them came from absolutely healthy families where no tuberculosis was known to have existed. The writer points out that the reason for the large number of cases is to be found in the unhealthy housing connected with fortification quarters.

CASE OF SPONTANEOUS RUPTURE OF A BRANCH OF THE TEMPORAL ARTERY.*

BY HAROLD D. CORBUSIER, M.D.

CONTRACT SURGEON IN THE UNITED STATES ARMY.

PPRIVATE H. W. A., 88th Co., Coast Artillery. White. American. Aged 20 years. Family History: the patient's family history has no bearing upon the case.

Previous History: The patient has been particularly free from illness and has never shown any tendency toward hemophilia.

Present condition: The soldier is in excellent health and all organs in perfect condition.

During night drill with the eight-inch guns on the evening of May 21st last, the soldier was leaning over a plotting board which was lighted by an incandescent light, of sixteen candle-power, situated about two feet from patient's head.

After having been in this position for about thirty minutes, the patient became suddenly aware that his face was dripping with blood which seemed to flow freely from the left eye. The hemorrhage happened without any premonitory symptoms and could not be controlled by the patient upon pressure over the affected point.

The soldier was hurried to the hospital, where, upon examination, I found his face to be covered with blood and the blood still spurting from a small artery in the lower lid at a point 5 millimeters below the outer canthus of the left eye. Deep pressure over the upper border of the zygoma controlled the hemorrhage to some extent, but the flow was not entirely stopped until hemostatic forceps were used to catch the artery at the point of rupture.

There was no evident cause for such a hemorrhage and the patient's statement to the effect that the eyelid was previously

*Published by authority of the Surgeon General, U. S. Army.

perfectly normal and was in no way injured, can be taken as verity.

It seems probable that there was present in this case an orbital branch from the superficial temporal artery and that at the point of hemorrhage the artery wall must have become weakened from some cause which could not be determined. Probably the position of the soldier, leaning over the plotting-board for some time, caused a congestion of the vessels of the head and this brought about the rupture of the artery at its weakened point. Whether the electric light took any part in causing the hemorrhage or not is difficult to say.

The amount of hemorrhage was considerable and seemed out of proportion to the extent of the injury.

The soldier has suffered no inconvenience, except a temporary photophobia during the hemorrhage and the only evidence now existing of the trouble, is a pin-head hyperaemic papule.

A NORWEGIAN VIEW OF THE GENEVA CONVENTION.

IN a historical and critical essay by Sanitary Captain Hans Daae of the Norwegian Army, the writer details the history of the Geneva Convention describing both the preliminary work of 1864 as well as the later expansions. He refers to the Geneva Conference of 1868 when the "additional articles" were adopted, the Hague Convention of 1899 and the Conference called for 1904 at Geneva. He presents the resolutions determined on in Geneva in 1868 and at the Hague in 1899 in full, together with the questions which the Conference of 1904 may take up for consideration. He also gives for the first time a translation of the Geneva code of 1864 in Norwegian.

He then proceeds to criticise each separate article of the Geneva Convention of 1864, bearing in mind the propositions which have been made from the most noteworthy sources for alteration of the several sections, and follows with a consideration of the most important propositions which have been made for new articles. He concludes by objecting strongly to the addition of supplementary articles to the existing code and recommends that an entirely new Convention be drawn up embodying the results of the Conferences of the past forty years.

TROPICAL ABSCESS OF THE LIVER.

By EDWARD WARWICK PINKHAM, A.B., M.D. HARV.

LATE ASSISTANT SURGEON IN THE UNITED STATES ARMY.

IN May 1900, the writer, then on duty in the Philippine Islands, was ordered to the Department Hospital at Iloilo, as operating surgeon, and held this position for about a year. The whole service of that year was replete with interesting and valuable experience. Surgical cases of nearly all kinds were continuously admitted to the hospital, some or them of such a character as to tax severely the knowledge and skill of the surgeon.

Among the more serious cases admitted were those of tropical abscess of the liver, accompanying or following amoebic dysentery. Sixteen of these cases came under the writer's care, and were treated surgically.

The following is a description of each case taken from notes made at the time.

CASE-1.—On Aug. 30th, 1900, N. S., a soldier, aged 29, was admitted to the hospital to be operated on for abscess of the liver, having been brought a distance of fifty miles for that purpose. He was a young man of good general physique, five feet seven and a half inches in height. At the time of admission he was somewhat emaciated, but no more so than many others who had been in the tropics a year or more and who were well enough to perform their duties. He gave a history of two attacks of dysentery, one a year and the other three months before admission. About a month before he noticed "a lump in the stomach" which had grown slowly larger. It did not cause him much pain at first, but at time of admission he had some pain on respiration and when the swelling was touched. Physical examination showed a rounded swelling about the size of a man's fist, on the right side of the epigastrium, bulging out from the lower border of the ribs. Under ether the abdomen was opened by an incision about two inches in length, parallel to the costal border, and one finger breadth below it. The liver thus exposed was sewed to the wall around the incision and the abscess cavity opened. It was found to be one centimeter from the surface. About 600 c.c.

of matter was evacuated, the cavity was washed out by a solution of peroxide of hydrogen, followed by one of corrosive sublimate, 1 to 8,000, and then packed with iodoform gauze.

The patient stood the operation, which was thirty-five minutes long, very well. The cavity was washed out daily with salt solution and packed with gauze, less being used each day. On the fifth day a discharge of bile began and kept up about four days. No untoward symptoms occurred. On the fourteenth day the patient sat up, and on the twenty-third day he was discharged cured. Microscopical examination of abscess contents showed a few bacilli which looked like colon bacilli, a few cocci, pus cells, cell detritus, changed liver cells and fat globules. No amoebae were discovered.

Manson advises that in cases of this sort the trocar and canula be used for the evacuation of the abscess. But as it seemed probable that the liver in this case was not adherent to the abdominal wall, and as there was no way of telling how far in the liver tissue the abscess was situated, it was decided that the safest proceeding would be to use the knife. The result proved that this decision was not an unwise one.

CASE 2.—A. C., 19th Inf., aged 19, was admitted to the medical side of the hospital for acute dysentery in the early part of Aug. 1900. It may be said here that the medical part of the hospital was entirely distinct from the surgical part and under different doctors. On Sept. 6th, surgical advice was sought on account of supposed appendicitis. The patient was found to be extremely emaciated and weak. He said he had been ill for six weeks, and that he had had one previous attack of dysentery. He had noticed some pain in the right hypochondrium for about three weeks. This pain had been attributed to colitis by his medical attendant. For two or three days the pain had extended down almost to the crest of the ilium and up to the costal border. Physical examination showed no swelling below the costal border. The liver was slightly enlarged and tender on deep pressure. Pulse rate 114 per minute. Temp. 102°F. The patient had been having between thirty and forty bloody stools daily up to three days before, since which time the number had been about ten. Consultation with Dr. Calkins led to the diagnosis of abscess of the liver; and although the patient was in poor condition for operation it was decided to try to evacuate the abscess, as it appeared that without some relief the case would soon terminate fatally. Amoebae coli were found in the stools.

In operating an incision was first made below the border of the ribs. On palpation through this opening no tumor could be discovered, and as the upper surface of the liver was not easily accessible from this point the opening was closed, and two inches of the eighth and ninth ribs resected in the mid axillary line. The pleura and diaphragm were cut through and the edges stitched together with chromicised catgut. With some difficulty, owing to the movements of respiration, the liver was then sewed to the opening in the diaphragm. The abscess cavity was then located by means of an aspirator needle and opened freely, about 500 c.c. of yellow pus escaping. The cavity was curetted and packed with iodoform gauze. The subsequent treatment consisted of a daily washing and packing. *Amoebae coli* were found in the pus. The abscess matter contained only a few leucocytes, red cells, broken down liver cells, free fat and serum. The patient made a good recovery from the operation, but the temperature remained high, and on Sept. 10th, ether was again administered and during the primary stage of anesthesia, three more abscesses were found and evacuated, the amount of pus being about 700 c.c. Death occurred five hours after this operation. At the autopsy, besides the four cavities already opened, numerous other abscesses were found scattered through the right lobe of the liver. The colon showed the usual results of ulceration and proliferation seen in dysentery. From the anus upwards for quite a distance it could be seen that a reparative process was going on, thus demonstrating the benefit derived from rectal lavage and showing its extent.

CASE 3.—F. F. B., 6th Inf., aged 35, entered the medical side of the hospital sometime in Aug., 1900, and was transferred to the surgical side on Sept. 20th, with a diagnosis of abscess of the liver. He gave a history of recurrent attacks of dysentery, the first one being in May, 1900. For this attack he had been in bed six weeks. For some four weeks he had been having pain on the right side in the region of the liver. At this time he was much emaciated, his weight being 138, and his present weight being 98 lbs. He was a man of education, and his natural disposition was cheerful, but now he was peevish and complaining. Pulse 118, temp. 101° F. *Amoebae* found in stools.

Operation. The anterior incision was made and the liver stitched to the abdominal wall without difficulty. Four abscess cavities containing about 1100 c.c. of reddish yellow pus were found and evacuated. The cavities were carefully curetted and packed with sterile gauze. The dysentery was treated with rectal injections of quinine solution, 1 to 1000. The abscess cavities were washed out and packed each day. On Sept. 23rd, the

cavities were clean and doing well. Dysentery obstinate. On Sept. 23th, the cavities were much smaller, but the dysentery was worse. On the 29th, at 6 P.M., the patient died. At the autopsy the abscess cavities were found to be smaller and apparently healing. Two more abscesses, each about the size of an English walnut were found in the right lobe of the liver. The whole interior surface of the colon was a mass of ulcers. One area was gangrenous. Other organs showed effects of toxæmia.

CASE 4.—E. F. 19th Inf., aged 25, was admitted to the hospital with a diagnosis of abscess of the liver. He had been brought a distance of ninety miles and was very weak. He had been in hospital with dysentery for one month, and had lost a great deal of flesh. Previous attacks in March and June 1900. Pain in right side over liver area for one month. Operation on Sept. 25th. Anterior incision. Abscess cavity about 3 cm. from surface of liver. Contents 500 c.c. Amœbæ coli found in large numbers in the pus. Sept. 30th pulse 120, temp. 102° F. Pain still present in region of liver. Patient anesthetized and another abscess evacuated through the same opening. At this time I was obliged to leave for Manila and was absent until Oct. 17th. In the meantime the patient was operated upon again by Dr. Caldwell, the surgeon in charge of the hospital. When I returned the patient was delirious and much exhausted. Temp. 103°, pulse 145. The symptoms of dysentery were very urgent, and death soon occurred. The autopsy revealed multiple abscess of the right lobe. The left lobe was adherent to the stomach, and contained a large abscess. Colon full of ulcerations. Other organs showed signs of a profound toxæmia.

CASE 5.—M. Mc. G., 19th Inf., aged 23, was admitted to hospital on Sept. 24th, for malaria. He had had several chills followed by a slight rise in temperature. General condition fairly good. Had dysentery in March 1900. Pain in region of liver. Liver a good deal enlarged. By aspiration through space between the eighth and ninth ribs an abscess was evacuated. Amœbæ coli found in contents of abscess. Blood count gave red corpuscles 3,100,000, white 9,000. Sept. 30th, the blood count showed red corpuscles 4,000,000, white 6,000. Oct. 31st, the patient was discharged well.

CASE 6.—F. C. 26th Inf., aged 21, was admitted to the medical ward in Sept. with acute dysentery, having about thirty stools per day. On Oct. 24th, he was transferred to the surgical ward with a diagnosis of general peritonitis and empyema of the right side. The liver was found to be enlarged, extending two

inches below the costal border, but there was no bulging. Operation for abscess of liver by the anterior route. The liver surface was slightly adherent to the abdominal wall. An abscess containing 600 c.c. was evacuated and the cavity curetted gently. In doing this the curette suddenly went in up to the end of the handle. Examination showed that it had broken into another cavity which was apparently empty. By further exploration it was determined that this second abscess had discharged itself either into the bowel or the peritoneal cavity. Both cavities were drained with iodoform gauze. The patient's temperature at this time was 102° F., pulse 110, resp. 26. He was having six stools a day of bloody matter, in spite of the enterolysis, in which a solution of quinine, 1 to 1000, was used. In twelve hours the temperature dropped to normal. The stools examined showed amoebae, blood and free fat globules. Abscess contents also showed amoebae but not in large numbers. On the evening of the 26th, the patient had a chill and the temperature shot up to 102° F., with a pulse of 150, and a respiration rate of 40. This was followed by a drop of temperature at 9 A.M. on the 27th to 97° F., with a pulse of 104, and respirations 28. On account of the presence of free fat in the stools it was concluded that the abscess had broken into the intestines, and it was thought that by introducing a No. 16 F catheter through the abdominal wound and through the liver into the intestine it might be possible to irrigate the colon very thoroughly. This was done for the following six days and the result was a marked decrease in the number of stools and in the amount of blood passed. On the 28th, the patient had another chill followed by a rise in temperature and by an intense pain in the right side, in the axillary line, over the upper border of the liver. Under ether two inches of the 8th and 9th ribs were removed. An intense pleurisy was found but no pus in the pleural cavity. The pleura and diaphragm were incised and stitched together around the opening as in other operations of this character. There was some difficulty in sewing the liver to the edges of the opening on account of the extreme friability of the liver tissue and the deep respirations of the patient, but this difficulty was finally overcome. A large abscess was found in the liver, opened, scraped and packed. On the night of the 29th, another chill occurred. An examination of the blood was then made for malarial organisms and none found. Signs of peritonitis, pain, tympanites, etc., led to an exploratory abdominal section. A severe local peritonitis was found, the intestines being matted together under the liver, but no free pus appeared. The patient recovered from this operation very well, although he remained extreme-

ly weak. He was given an intravenous injection of normal salt solution at a temperature of 110° in the bottle, on the 29th, and again on the 30th. His temperature then was 100° F., and his pulse 120. On the 31st another chill. Liver explored and two more abscesses found and evacuated. Another two quarts of salt solution injected into the veins. On Nov. 1st, the temperature was 100° F. That afternoon a slight chill occurred, but patient said he felt better. Nov. 2nd, temperature normal, pulse 112, respiration 26. Patient had taken his nourishment well and there was no nausea to speak of, but he was much exhausted. That night the record was temperature 102° , pulse 148, respirations 26. Patient was extremely restless and complained of pain all over the liver region, and on the right side of the chest. Examination of liver without anesthesia revealed nothing new. More salt solution was given, but the temperature kept on rising, and death occurred on Nov. 3rd. At the autopsy an acute pleurisy of the right side was found with some involvement of lung tissue. The liver was rather large and was literally packed full of abscesses of different sizes. One abscess had perforated the intestines and the catheter which had been introduced lay well down in the gut. All around that opening the intestines were agglutinated, and there was a marked local peritonitis in that vicinity, but the general peritoneal cavity was not infected. The spleen was softened, the kidneys slightly enlarged and the cortex greyish in color. The mucous membrane of the colon showed healing ulcers throughout its whole extent and a general appearance of regeneration.

CASE 7.—H. B., 18th Inf., aged 27, was admitted to hospital Nov. 16th, with acute dysentery, having from twelve to twenty stools per day. He was supposed also to have acute pleurisy, and examination showed some fluid in the right pleural cavity. By means of an aspirator needle about 200 c.c. of matter was withdrawn. Examination of this matter with the microscope showed liver cells in various stages of disintegration, a few red and white blood corpuscles, and a large amount of free fat. There was no pain over the region of the liver. The patient's condition did not admit of further operative procedures and on the following day he died. The autopsy showed acute dysenteric ulcerations of the colon, and multiple abscess of the liver, the number of cavities found being thirty, one of which, by far the largest, had broken into the pleural cavity. The rest varied in size from the size of an English walnut to that of a pea, giving the cut surface of the liver a "polka dot" appearance.

CASE 8.—A. S., 6th Inf., aged 38. Admitted to hospital Dec. 4th. He was about six feet tall and fairly well nourished. Had had dysentery for about two months, this being his second attack. He had noticed a slight swelling at the right anterior border of the ribs two weeks before. This had given him no trouble until a week before when he observed that it hurt him to press on that part of the body. Temperature 99° F., pulse 78. Diagnosis, abscess of the liver. Operation Dec. 16th. Anterior incision. Liver stitched to the abdominal wall without difficulty. About 600 c.c. of matter evacuated. Cavity curetted and packed with iodoform gauze. On Dec. 8th the dressings were still saturated with bile. The temperature rose to 103°, and the pulse to 110, but that same evening fell to 99°, and 80. On Dec. 9th, the dressings were still saturated with bile. After this the patient made constant improvement. On the 6th of Jan. the bile coloring disappeared from the discharge. On Jan. 24th, the patient was discharged to duty with wound completely healed. No amoebae were found in the pus.

CASE 9.—A. S., 18th Inf., aged 18. Admitted to hospital Jan. 11, 1901, with a diagnosis of acute diarrhoea and malaria. He gave a history of having had bloody stools up to two days before entering the hospital, and complained of indefinite pains on the right side. Had had chilly sensations off and on. Temperature 99°, pulse 80. General condition fairly good, but there had evidently been considerable loss of weight. Abdominal examination revealed nothing. Chest clear, no friction sounds or rales. Liver not enlarged. No plasmodia malariae in blood. On Jan. 13th, patient had a chill followed by a temperature of 103°, and pulse of 120. Blood again examined and no plasmodia found. Owing to the negative examination for malaria, the history of dysentery, and the present symptoms of chills, pain and fever, the diagnosis of liver abscess was made and an operation decided upon. On Jan. 16th, the ninth rib was resected in the mid axillary line, and the liver sutured to the opening in the manner before described. Pus was found by the aspirator needle, the liver opened with the knife and 700 c.c. of pus evacuated. Cavity well curetted and packed with iodoform gauze. Scrapings from the cavity showed amoebae coli in abundance. In the pus were found numerous bacilli and diplococci. The case terminated in recovery.

CASE 10.—A. Van D., 26th Inf., aged 21. Sent to hospital on Jan. 21st, for acute pneumonia. He had a good deal of cough and raised profusely a thick brownish red matter. Temp. 102°, pulse 110, resp. 34. He had lost about thirty lbs. of flesh in past

two months. Had had dysentery for three months, and complained of indefinite pains in the right side. Surface over liver painful on pressure. Examination of sputa showed red and white blood corpuscles, a large amount of cell detritus, and much free fat. Diagnosis, multiple abscess of liver with perforation of diaphragm and discharge through the lung. On account of the patient's continued weakness and the other symptoms it was decided to explore the liver. This was done by the anterior incision. The liver was sutured to the abdominal wound with some difficulty. A large, irregular abscess was evacuated and treated in the usual way. After the operation the temp. was 101° , pulse 120, resp. 34. The operation did not seem to give much relief to the symptoms, and hence on the following day the liver was explored again, this time with the finger. The liver tissue was very soft and a good deal of hemorrhage took place, which, however, was controlled by packing the cavity with gauze. Patient died on the following day. No autopsy. Amoebae found in contents of abscess.

CASE 11.—C. K. H., Bat, 1, 6th Art., aged 32. Admitted Jan. 30th to medical side of hospital with a diagnosis of acute dysentery. During the previous twelve months he had had three attacks of dysentery. At time of admission to hospital he was having from four to six bloody stools a day accompanied by severe tenesmus after the movement. He was much emaciated, having lost some thirty pounds in the past year. Very anaemic. Blood count, red 2,500,000, white 7,000. Temp. 103° , pulse 104. Liver enlarged, the edge being felt for two finger breadths below the costal border. There was soreness, also, over the liver area. On Feb. 1st, the patient was transferred to the surgical side of the hospital, the liver was aspirated and no pus found. It was decided however, to operate for abscess of liver. Anterior incision made about two and a half inches in length along the margin of the ribs. On opening the abdomen the liver edge protruded into the wound. The lower part of the wound was packed with gauze to protect the peritoneal cavity and the liver edge, which was freely moveable, stitched to the opening. Liver incised with scalpel for a depth of one inch and no pus found. The aspirator needle was then used with a negative result. Being certain, however, that there were abscesses, I continued the search, using the finger and penetrating the liver tissue freely. There was some bleeding of the character of a venous oozing, but not excessive. After a search of half an hour, during which the liver had been penetrated seemingly in all directions, to the full length of the finger, I was rewarded by breaking into an abscess, which was very long

and narrow, extending longitudinally across, the liver from left to right, about one inch broad at the beginning, but widening out towards the lower angle. About 200 c.c. of pus evacuated. The patient's condition, while not very good, was fair, but he took the ether badly, and his respiration was labored. The liver at the wound opening tore away from its stitches. At this juncture it was decided to draw up the hepatic flexure of the colon, which was lying very close to the lower angle of the abdominal wound, stitch it there, perforate it, and insert a catheter for irrigation. This was done, and a No. 15 F catheter used. The patient was given eight quarts of salt solution by the rectum, and two quarts into vein in right arm. He made a good recovery from the operation. On the third day after the operation, the abscess cavity and the bowel having been irrigated with salt solution twice a day, the blood in the stools entirely disappeared. The opening in the gut was then closed with Lembert sutures, and healed nicely. On the 5th and 8th days of Feb. three more abscesses were found through the original incision, the exploration being done as before with the finger. One of the abscesses was in the left lobe of the liver. At times the dressings were covered with bile. The patient improved steadily, began to take on flesh and was discharged well on April 2nd, 1901.

CASE 12.—C. I., Band, 26th Inf., aged 21. Admitted to hospital on March 5th with a diagnosis of recurrent dysentery. He had three attacks of dysentery in the previous twelve months, from which he had apparently recovered. On March 15th, he was transferred to the surgical side. Abscess of the liver was then suspected. Patient very weak and much emaciated. He said that he had no pain anywhere, and was very anxious to go home with his regiment which was soon to sail. Examination showed liver slightly enlarged and extending below the costal border. Liver aspirated under cocaine and no pus found. Patient collapsed under cocaine and was resuscitated with some difficulty by means of heat and stimulants. Temp. 103°, pulse 100. At an operation later under chloroform (no ether could be obtained) two and one half inches of the 8th rib was resected. Pleura and diaphragm incised and sewed to wound. Diaphragm incised and sewed to liver. Liver incised with Pacquelin's thermo cautery. After some search with the finger two distinct abscesses were found, emptied, curetted and packed. Amoebae found in stools and in abscess contents, curettings included. Two days later, the symptoms not having improved, (temp. 103°, pulse 125) except that the dysentery had apparently subsided, the patient was chloroformed, and the abdomen opened by another incision along the

lower border of the ribs. Two more abscesses found in the right lobe and one in the left. Connection made through liver to first opening. Two days after this two more abscesses were found and evacuated. The patient seemed to improve somewhat for one week. Then the symptoms returned. Under the use of chloroform in the previous operations the patient had collapsed each time, and it was with a great deal of difficulty that by artificial respiration, inversion of the body and stimulation he was resuscitated. With the recurrence of the symptoms it was deemed unwise to give an anesthetic, and an operation was undertaken without chloroform; but the condition of the patient called a halt in the proceedings. Death occurred twelve hours later. The autopsy showed the liver filled with abscesses, there being some twenty of them, two of which were in the left lobe.

CASE 13.—J. R., 19th Inf., aged 25. Sent to hospital (surgical side) on March 28th, with a diagnosis of empyema. He denied ever having had dysentery, but said that he had a slight attack of diarrhoea in Feb. of that year. Liver extends two fingers breadth below the costal border. Thorax clear of friction sounds and normal on percussion. Some pain on right side of an indefinite character, and some tenderness over the liver. Temp. 101°, pulse 88, resp. 34. Operation by anterior incision. Liver sewed to abdominal wound, and incised with knife. Two moderate sized abscesses evacuated near the surface. Examination of pus showed no amoebae, but a large number of bacilli resembling the colon bacilli, which they probably were. That night the patient had five large hemorrhages from the bowels from which he died. Autopsy showed multiple abscess of the liver,—nine in all, and twelve scattered, deep ulcerations of the colon, with rounded edges, the high one being about 8 cm. from the caput. Spleen soft and large. Kidneys large (cloudy swelling), capsule adherent. Just before death a troublesome tympanites came on and resisted all measures for relief.

CASE 14.—N. P. 19th. Inf., aged 32. This patient was transferred from a small post hospital about ninety miles away to the department hospital with a diagnosis of convalescence from typhoid fever. He walked to the hospital from the boat by which he had come, a distance of about one quarter of a mile. He said that he felt weak and had some pain in the right side, not severe, and that he had been sick for six weeks with some kind of fever. Six months before he had had the same kind of fever. He denied having had dysentery. He entered the medical side of the hospital on March 29th, and on April 1st, came under my observation. I found a moderate sized swelling in the hypo-

chondrium, with pain, or rather exquisite tenderness, on compressing the liver. Diagnosis, abscess of the liver. Operation the same day by anterior incision. A large abscess was found extending nearly from the anterior to the posterior surface of the liver, and containing about three pints of pus. Colon bacilli and a few staphylococci were found in the pus, but no amoebae. The patient's condition was so poor before the operation that hypodermatic injections of whiskey and strychnia were required. Death took place from shock two hours after the operation. The autopsy disclosed two other large abscesses lying side by side in the liver, each containing about a pint of pus. Both kidneys were enlarged and presented evidences of nephritis and of purulent pyelitis. The whole length of the colon showed partially healed ulcerations. The ileum showed cicatrices of ulcerations of Peyer's patches for about two feet from the ileo-caecal valve.

CASE 15.—H. J. J., 18th Inf., aged 35. Entered surgical side of hospital on April 5th, 1901, with a diagnosis of pleurisy. He had been in the islands about three months. In Feb. of that year he had dysentery. At time of admission he complained of pain in right side and back, about in the lines of the third and fourth ribs. Temp. 101°, pulse 88, resp. 28. Aspiration of liver showed pus in posterior part of right lobe. At the operation two inches of the 8th and 9th ribs were removed. Liver free. Gauze packed around the opening and liver not sewed to the wound. Two moderate sized abscesses found and evacuated. Cavities curetted and packed. A few non moving bodies similar to amoebae found in the pus. For about twenty-four hours after operation patient had a severe tympanites which did not yield readily to relief measures. On the 5th day the gauze packing was removed. The issue of this case was complete recovery.

CASE 16.—J. J. G., 26th Inf., aged 31. This man was sent to the hospital for two reasons: first, to give him a chance to recover from an attack of delirium tremens, and secondly for pain in the right side over the liver. He had had dysentery twice during the previous year. On examination the liver was found to be enlarged, the margin extending down for about one finger's breadth below the costal border. A diagnosis of liver abscess was made, and that organ aspirated very carefully twelve times, but no pus was found. The liver tissue seemed more resistant than usual; and this fact, taken with the failure to find pus, and the man's intemperate habits, led to the conclusion that he was suffering from cirrhosis of the liver in its hypertrophic form, rather than from abscess. It should be said also that he had had occasional attacks of jaundice. A few days after this

the symptoms led me to aspirate again, and this time about 200 c.c. of pus was obtained, proving that my first conclusion was the correct one. The pain in the side soon subsided, and the man was sent to duty in one week.

REMARKS.

In this series of sixteen cases there were seven recoveries and nine deaths. The percentage of mortality is very high, but it can be easily accounted for. In eight of the fatal cases an autopsy was made and revealed conditions which could not have been discovered beforehand, and which rendered a fatal result certain. In some of them the operation gave a measure of relief to the symptoms, but could do no more. It may be safely assumed that without surgical attention all these patients would have died. In a few of the non fatal cases a spontaneous discharge of the abscesses might, under favorable circumstances, have occurred, leading to the recovery of the patient. But the circumstances in the Islands were not favorable; the patients were, almost without exception, emaciated and weak; the tendency of the dysentery was to recur, and of the suppurative process to spread, making the chances of a spontaneous recovery very small. It may, therefore, be rightly claimed that in this series of operations seven lives were saved and none sacrificed.

Not more than six of these cases entered the surgical ward of the hospital with a correct diagnosis. In two of them the abscess was only suspected. In the other cases there was a wide range of diagnosis, embracing appendicitis, malaria (accounting for the chills), acute pleurisy, acute pneumonia, peritonitis, empyema, convalescence from typhoid fever, and delirium tremens with pain in the side. Gall stones, with or without suppurative cholecystitis, were apparently not thought of in connection with these cases, probably because the severe pain which usually accompanies this affection was absent.

Abscess of the liver is a very rare affection in northern latitudes, and the literature of our ordinary books of reference is meager in regard to it: hence it is not strange that such very reasonable errors of diagnosis should be made by those who had had little or no experience in the treatment of tropical diseases. After a while the surgeons became more familiar with this common sequel of

tropical dysentery so that they were on the lookout for it and made the diagnosis more readily. These errors in diagnosis, together with the total failure in all the cases to recognize the disease in its early stages account, in a large measure, for the high rate of mortality. A prompt recognition of the complication and appropriate treatment might have enabled us to make a different showing.

A systematic blood count to determine the presence or absence of leucocytosis could not be made owing to the lack of apparatus. In two cases a count was made with borrowed apparatus which was not available at other times. In these cases, as may have been observed, anaemia was shown, but no leucocytosis.

It is seen that in a majority of the cases, dysentery was a concomitant affection. In those cases where there was no dysentery recovery followed. In all the cases there were emaciation and debility, and these were prominent factors in the fatality, or rather in the production of the conditions which rendered a fatal result more likely to happen. The loss of flesh and great weakness were due of course, to the long drain upon the system both of the dysentery and of the unrecognized abscess, together with the depressing effects of the tropical climate.

In thirty two autopsies made on the bodies of those whose death had been ascribed to dysentery abscess of the liver was found in five. In one case the liver was so filled with abscesses, varying in size from the size of a pin's head to that of a pecan nut, that the cut surface of the right lobe gave the appearance of a "polka dot" piece of yellow brown cloth. A similar appearance was noted in one of the cases operated on, as has been stated.

These so called abscesses of the liver are not true abscesses, nor are their contents pus. They are rather areas of necrosis, or liquifaction of the liver tissue, and their contents are made up of liver cells in all stages of degeneration and disintegration, free fat globules, more or less of blood corpuscles and serum. In this paper the terms abscess and pus are used for convenience. An examination, such as was possible with our imperfect outfit, was made in all the cases of the contents of the abscesses. Amoebae were found in eight of the cases. In some of these they were not

discovered until the scrapings of the abscess walls had been examined. In the cases of long standing single abscesses followed by recovery amoebae were not found. In all the cases where there was concomitant dysentery amoebae were found in the stools. In all cases except the first it was made a practice to curette the walls of the abscess before packing, the object being to remove as much of the infected tissue as possible. The scraping was done very carefully with a sharp curette.

Finding an abscess in these cases is often a matter of luck, for unless there is a localized swelling of the liver surface there is no way of locating the pus except by the aspirator, and this sometimes fails even in cases where an abscess is afterwards found on section.

In making a diagnosis of abscess of the liver the previous history of the patient is of the utmost importance. If a patient gives a history of having had dysentery of a tropical, or amoebic type; if he has an indefinite pain, or a sensitive feeling over the liver area, manifested on compressing the ribs on the right side; if he has chills, or chilliness, and more or less of fever, similar to that of septic infection, abscess of the liver may be suspected, whether or not the liver shows signs of enlargement. When dysentery is coexistent with the symptoms above mentioned it is almost certain that an abscess exists. Aspiration may be an aid to the diagnosis, but it is by no means a certain one. The liver may be punctured a number of times without obtaining pus, and afterwards on operation an abscess may be found, as has been stated above. It is a good plan, however, after a patient is anesthetized to aspirate, for if pus is found the needle is a good guide to its locality, and if it is not found no harm has been done. Aspiration under cocaine proved in one of my cases to be an unpleasant and indeed somewhat dangerous proceeding. It is not, in my opinion, to be advised in these cases, for as a rule the patient's condition is too poor to stand much of the depressing effect of the drug.

When the diagnosis of abscess of the liver is made, or even strongly suspected, immediate operation is demanded. As a rule the abscess can be found, but if it is not some benefit may perhaps

be derived from the incision itself. I operated on one case, after my return from the Philippines, in which the diagnosis appeared to be clearly made out, all the symptoms being present, together with amoebic dysentery, in which the result seemed to sustain this theory. The operation was through the thoracic wall, liver stitched to opening. After searching through the softened liver tissue with the aspirator, and later with the finger no pus was discovered. A small packing of sterile gauze was placed in the wound and the opening closed all but the lower edge where the drain was placed. The gauze was taken out in twenty-four hours. The patient's symptoms immediately began to mend, and he made an uninterrupted recovery. There has been no recurrence. Is it not possible that there was an abscess which I did not succeed in finding, and that the hepatotomy stimulated the liver to absorb the pus thus leading to the recovery of the patient?

One interesting fact brought out by these operations is the demonstration of the freedom with which one may search through the liver tissue without dangerous hemorrhage. The search should be made by the finger rather than by any sharp or steel instrument. The finger seems to slip over the arteries and large veins without rupturing them. Manson lays stress upon the danger from hemorrhage in exploring the liver, and speaks of the great friability of the liver tissue making it extremely difficult to sew the liver to the wound. Neither of these troubles did I experience to any great extent.

It is my opinion that no abscess, whether bulging or not, should be evacuated and drained by means of the trocar and canula as suggested by Manson. There may be adhesions of the liver to the wall and there may not be. Most likely they do not exist. One cannot be sure in any case, and the risk is run of infecting the thoracic or abdominal cavity if this method is followed. The operation by incision is surer and safer, and the shock to the patient is not greater, except in extreme cases, and in these the quickest method is the best.

Osler, in an article in the *Medical News*, of April 12th, 1902, speaks of a diffuse cyanosis as present in cases of abscess of the liver. This symptom was present in so many of the poorly nour-

ished soldiers suffering from a variety of diseases, especially recurrent dysentery, with or without abscess, that it did not seem at that time to be particularly diagnostic of abscess. He also speaks of the swelling noticed at the costal border. This swelling appeared in only a few of my cases, and was generally in the single abscess type, which almost invariably was followed by recovery. In this type of case there were no chills, but with the multiple abscess type with dysentery, chills and irregular fever were always present. In two of the cases where there was dysentery the colon was entered and irrigated. In one of these cases the great benefit derived from the irrigation was shown on autopsy, and in the other a cure was affected by this procedure.

In my opinion this is the best method of treating those obstinate cases of recurrent dysentery which so often baffle medical skill. The most practicable way to accomplish the end is to perform right inguinal colotomy, as recommended by Bolton. It is my belief that a large number of lives might have been saved in the Philippines during the late war had this surgical treatment been adopted. As it was the antagonism of the great majority of our medical men to the introduction of surgical methods in the treatment of a disease which had hitherto been considered as belonging especially to the province of the physician was too strong to be overcome. It is to be hoped that by this time a different spirit prevails among them, and that when necessary the surgeon is promptly called upon to aid in the treatment of the dread tropical disease which we are considering. When the attacks of dysentery have been stopped and the ulcerations of the bowel healed, then the danger from that extremely fatal complication, abscess of the liver, will have been greatly lessened.

Contemporary Comment.

A GERMAN VIEW OF THE AMERICAN ARMY MEDICAL SCHOOL, LIBRARY AND MUSEUM.*

BY STAFF SURGEON DR. EHRLICH,
OF GIESSEN.

WHEN, during my stay in Washington, General O'Reilly in his amiable manner detailed two medical officers of the American Army to show me through the Medical Museum and its adjunct the Army Medical School, I expected to find something similar to our "Kaiser-Wilhelm Akademie," though perhaps on a smaller scale.

But what I actually saw proved to be totally different from the conception I had formed. The Museum, with its collections, and its Library, is designed not only for the instruction and information of the Army Medical Corps and the students of the school, but is, in effect, a public institution open to everybody, under the direction of the Surgeon General of the Army. The only parts not open to the public are the rooms of the School and (of course) the depot for army medical supplies in the cellar.

The simple red brick building stands at the south-east end of the so-called "Smithsonian Grounds," a beautiful stretch of park, in which the National Museum and the Smithsonian Institution, a museum for all branches of science, are situated.

The Army Medical Museum comprises several divisions, which are under the direction of medical officers detailed for that purpose.

Here one finds along with the arms and utensils of savage and semi-civilized man, many rare pathological preparations of

*Translated from the "Deutsche Militärärztliche Zeitschrift, (July, 1904, p. 396 *et seq.*) by Dr. F. H. Garrison, Assistant Librarian, Army Medical Library.

man and the lower animals. Entire skeletons of animals of all kinds and sizes are exhibited, as well as stuffed specimens; serial sections of organs are displayed comprehensively between plates of glass, to give the spectator an idea of their growth and structure. So too, there are large numbers of sections and wax models in the field of embryology. Especially fine are the ground cross sections of skeletal bones, human and comparative. The preparations of tropical diseases also awaken lively interest, but are unfortunately bleached out by being kept in alcohol, and have lost their natural colors. I called the attention of the pathologist to the methods employed in Germany (e. g. Kaiserling's method) of preserving specimens in saline solutions, which, it seems, are not generally known of in America. There are also many well executed wax models of different diseases of the skin and viscera. While these, from a scientific point of view, may be designated as really excellent reproductions, yet, when taken in conjunction with the life size wax figures of hospital corps men in different uniforms, they remind one somewhat of a "Panopticon." In like manner there is a collection (almost complete, as the officer in charge assured me), which is mainly of historical interest, namely, the collection of all the medals and memorial coins which have ever been struck off in connection with medicine. Here one sees all possible coins, from those of ancient Rome with heads of emperors and the inscription "Pro salute," up to medals of the most modern Medical Congresses.

These exhibits, as, in fact, all smaller objects in the Museum are displayed in a very practical manner between plates of glass, which are arranged circle-wise around an axis, where they may be revolved at will.

The most complete and valuable collection is decidedly that of the microscopes. It embraces the earliest forms—curiously shaped tubes, made of wood and covered with leather and gilt paper, which the old investigators, with much skill and labor, made with their own hands—as well as the most complete modern instruments of Zeiss and others.

The more valuable specimens, especially the old ones, are purchased by order of the medical division, there being a liberal

fund for that purpose; but many are gathered and presented by medical officers traveling abroad or stationed in the Philippines and other remote parts. The pathological preparations are almost all presented by the medical officers. Even in the instructions for the Medical Corps there are exact directions for the preparation and packing of specimens intended for the Museum.

Adjoining the Museum is the pride of the American Army Medical Corps, viz., its Library. This truly imposing and extensive collection of books is distributed in three large rooms with many tall frame-works for shelving. These rooms open into a rotunda-like place two stories high, which serves as a hall for reading and study. The walls are adorned with portraits of distinguished medical officers and teachers, and the room itself is provided with large tables and comfortable seats. The Library seemed to be zealously utilized, and indeed among the spectacled old gentlemen whom I saw eagerly perusing certain portly volumes, there were several ladies, who were making extracts from journals.

The collection of books, inclusive of pamphlets, comprises half a million volumes. These are mostly modern works, the direction not setting much store by old manuscripts. The collection of the former, therefore is almost complete. The Librarian told me that he was in touch with booksellers in Leipzig, London, Paris, and other centres of the book-trade, who were directed to send in all new or rare books. There is only one other library in the world which can compete with this one in rank and in its collection of rare and costly works, namely, the British Museum.

The officer showed me with considerable pleasure and satisfaction the nine or ten volumes of the second series of the catalogue. The original edition of 16 stout folio volumes proved to be no longer adequate for the continual growth of the Library. It is very comprehensive and convenient not only as to names and works, but also arranged by subjects, giving individual diseases and their treatment. Along with medical works proper, the Library also subscribes to all known medical periodicals of importance in whatever language.

With a feeling of genuine astonishment I took leave of the Library and followed my courteous guide into that part of the building from which the public is excluded. The Army Medical School with its many laboratories and work rooms, all of them, especially the microscopic room handsome and bright, differs in no wise from our modern scientific institutions. Its appointments are adequate to all the demands of modern science.

I will give a more detailed account of this establishment, as the reader is no doubt prepared to assume an institution similar to our "Kaiser Wilhelm Akademie." This is, however, not the case.

The American Army Medical Corps is recruited from graduated, licensed physicians, who have to undergo a very severe and searching examination as to their physical as well as their general and special scientific knowledge. Those admitted are ordered as soon as possible, usually in the first year, to a 5 or 6 months course at the Army Medical School. In addition, all medical officers stationed at Washington or the vicinity can participate as voluntary students in these courses of instruction. To the same end, leave is willingly granted in the case of a medical officer who has served for a long period of time on the frontier or in the Philippines.

The students wear uniforms during the hours of instruction and a strict eye is kept upon them.

At the end of the course there is a close examination, followed by a distribution of prizes, usually in the great hall of the adjoining National Museum. On this occasion appear the Secretary of War, the Commanding General of the Army and the heads of authority. The Secretary of War himself distributes the diplomas and prizes, then follow addresses to the graduates by the Surgeon General and the General of the Army. The same custom obtains in the other military schools, e. g., the War College, the Cavalry School, etc.

The Faculty of the Army Medical School consists of medical officers stationed at Washington, who, without regard to their military rank, give instruction in their special branches. They are usually however older medical officers from the rank of Major

up. The members of the Faculty have, along with their military rank, the title of "Professor" of their given specialty, the senior in rank bearing the title "President."

The course of instruction embraces lectures and practical exercises in administration in peace and war, military surgery and field service, military hygiene, internal medicine, clinical and hygienic microscopy, pathological histology and bacteriology, skin and venereal diseases, instruction in the formations of the hospital corps with tactical exercises, and finally instruction in riding. To these are added lectures on non-medical subjects voluntarily given by special authorities at the invitation of the Surgeon General. For example, lectures by the Judge Advocate General of the Army on medical jurisprudence, military law, and courts martial, as well as lectures by a member of the Agricultural Department on the parasites of man.

I then proceeded to the inspection of what, for a medical officer, was the most interesting part of the building, the cellar. Here, as I have said, is the depot of medical supplies for the Army.

Everything I saw there was good and very practical, if sometimes too costly and elegant for large armies and mostly adapted only for the peculiar American conditions. For example, there are regimental field hospitals consisting of 12 beds each for the volunteer regiments, who always want their wounded near them and to whom, as General O'Reilly informed me, these concessions must be granted, as they are the only reserve forces of the standing army. The regiments in themselves are also much weaker in complement of men than ours and for this reason the tactical unit for the field equipment is not the battalion but the regiment. But it would carry me too far to go into all these details, and I propose to describe the field service in another paper.

For the present, let me mention briefly that in addition to a medicine chest, there is allotted to each regiment a surgical chest, a sterilizer chest with sterilization apparatus, disinfectants, brushes, rubber gloves, Berkefeld filters, etc., a reserve box of surgical dressings and a Maignen filter.

All the receptacles are about the size of our medicine chests, with brass mountings, and a very practical mode of closure by

means of a lock in the middle and two clasps at the sides, which are held fast by springs. In addition they have a covering of sail cloth, and a contrivance by means of which two chests can be loaded upon one animal for transportation, when necessary. For this reason the chests are very light and tightly packed. The medicines are as far as possible in tablet form which are packed in containers, *which are of the same size for fluid medicines*. The cubical shape and equal size of the tins greatly facilitates their packing. The screw cover of the tins is practical, with a lever for the finger to facilitate opening.

The litter consists of two wooden poles with metal feet and sail-cloth cover and two transverse rods of thin metal with a hinge in the middle. The litter can thus be folded lengthwise in transportation and the cloth rolled around it. In the equipment of the hospital corps, I was especially pleased with the bed for field hospitals. It is made of thin, but strong wooden pieces provided with hinges, so that the whole can be folded together, and with all its appointments—empty bed-sack, linen and mosquito netting—weighs about 20 pounds. Packed together it does not take up more space than the above litter when packed. The bedding of the field hospitals is packed in bales the size of a medicine chest, with sail-cloth covering, and containing bed and body linen for 6 to 12 men, with a thick rubber sheet for each tent. This rubber sheet is spread out on the ground and the shelter for the wounded is made over it.

Very appropriate too are mess-chests with table ware for 60 to 80 men, including plates, cups, knives, forks, spoons, a machine for cutting meat, cooking utensils, etc. The cups and plates are made of thin enamelled metal, and are packed tightly together for economy of space. These chests are also light and not larger than an ordinary trunk. Interesting to see were the chests for field hospitals containing an outfit for acetylene lighting.

The equipment of the personnel consists of flat pouches of quadrangular form, which contain in three compartments, instruments, medicine and bandaging material. The pouches of the privates have an outfit similar to our own, those of the non-com-

missioned officers, contain an emergency case and medicines. In addition, each medical officer has an orderly detailed, a hospital corps man, who carries a large pouch with instruments, bandaging material, chloroform, etc. All pouches are carried by straps across the left shoulder. The inner arrangement of the emergency cases was not satisfactory, inasmuch as the fasteners of the compartment for instruments would by continued pressure break the glass ware. The officers also complained that the Surgeon's field case struck against them in riding. This is the fault of the American uniform coat, which is worn as a jacket without waist or rear buttons. When I remarked that, with us, cartridge boxes are fastened simply to the back buttons at the waist of the coat, my companions had to laugh heartily because they had not hit upon that simple expedient before.

Finally I inspected the historical part of the depot, where I was particularly struck with an instrument chest with metal compartments devised by Senn, the packing of which is said, however, to be lengthy and difficult; and an old wooden chest which had been used in the war of 1862. The latter contains the greatest curiosity of the depot, viz. a tin chloroform flask with a soldered top, which was still full, a sufficient guarantee of the excellence of the stopper. From other flasks in the same chest I could convince myself as to the exact amount of usage.

When after a very detailed inspection of the supply depot, I took leave of my attractive companions, I was able to assure them with a good conscience that I had seen and learned much that was new and practical.

TUBERCULOSIS STATISTICS OF THE KRISTIANIA MILITARY HOSPITAL.

IN the *Norsk Tidsskrift for Militærmedicin*, Captain Thrapp Meyer reports that tuberculosis is on the increase among the military forces in Kristiania. There were admitted to the military hospital in that city three times as many cases in 1903 as in 1899.—HANS DAAE.



The Russian Wounded at the Mukden Railway Station.—1904.

THE MEDICAL ORGANIZATION OF THE RUSSIAN ARMY.*

BY LIEUTENANT COLONEL FRANK HOWARD, A.M.S.
OF LONDON.

THE Russian Medical Service† is organized on the system of dual control, there being a military governor in every large hospital, who is the responsible head.

In peace there is no medical corps in the Russian army existing as an unit by itself. Each combatant unit has a small medical *personnel* belonging to it.

The medical establishment for an infantry regiment of 4 battalions is—

- 1 senior surgeon (surgeon major)
- 4 junior surgeons (assistant surgeons.)
- 1 senior dresser.
- 12 junior dressers.
- 1 apothecary.
- 14 dresser pupils.
- 1 hospital sergeant.
- 3 hospital orderlies.

All non-combatants.

Each unit has its own hospital, that of an infantry regiment numbering 16 beds. In addition, there are garrison hospitals for more severe cases in certain of the larger garrisons, with beds for from 150 to 800 men, and to these a medical *personnel* varying from 4 to 18 medical officers, with the necessary subordinate *personnel*, is attached.

From the above, as cadres, are formed all the medical units required on mobilization, the extra medical *personnel* being taken

*Furnished by the Second Division, General Staff, U.S.A., and reprinted from the "Handbook of the Medical Organizations of Foreign Armies. By Lieut. Colonel Frank Howard, A.M.S.," London, 1902.

†The total of the medical department of the Russian army is given as about 2,808 surgeons, 232 pharmacists, 3,804 dressers and 3,455 company squadron, or battery dressers, which represents the peace organization.

from the reserve, and the drivers supplied from the reserve of cavalry.

REGIMENTAL MEDICAL ESTABLISHMENTS.

Each unit in the field has a medical *personnel*, with the requisite stores and transport attached to it. Taking, for example, an infantry regiment, the medical *personnel* is the same as in, peace, except that there are 20 junior and company dressers, and no dresser pupils. The *materiel* comprises stores for a hospital of 16 beds, and, in addition, each dresser carries a dresser's knapsack for first aid, and 32 stretchers are provided. The medical transport consists of—

- 4 1-horse carts for medical stores.
- 1 2-horse wagon with stretchers.
- 4 4-horse ambulance wagons.

Six men per company are trained as stretcher bearers, and when so employed wear the Red Cross badge on their left arm, but otherwise take their places in the ranks.

The medical arrangements in other units are of a similar nature.

In action the regimental medical *personnel* form advanced dressing stations to which the wounded of the regiments are brought in, and in which their wounds are attended to and first aid applied.

When troops are halted, a regimental hospital is organized.

SANITARY DIVISIONS.

To each active or reserve infantry division in the field is attached a "sanitary division," which forms part of the divisional supply and transport column, and consists of—

- 1 divisional hospital.
- 2 mobile field hospitals.

The "divisional hospital" corresponds to the British "bearer company;" the "mobile hospital" to the "field hospital."

To each of the rifle brigades of the line is attached a brigade hospital, corresponding to the "divisional hospital" of an infantry division.

DIVISIONAL HOSPITALS.

The work of the divisional hospital in action is to form a main dressing station; to search for and bring in the wounded

from the field, or the advanced dressing stations, to it, and to co-operate with the troops, in despatching the wounded to the field hospitals told off to them. The main dressing station is marked by day by two flags (one national and one bearing the Red Cross) and at night by lanterns.

The composition of the divisional hospital is as follows:

1 divisional surgeon.

4 other surgeons.

Total 5 medical officers.

1 officer in charge of bearer company and hospital.

1 hospital overseer (official.)

3 dressers.

1 apothecary dresser.

1 veterinary dresser.

2 clerks.

22 hospital assistants.

2 transport under officers.

37 transport drivers.

Bearer company—

1 sergeant-major.

4 senior under officers.

12 junior under officers.

200 privates

Total 285 N. C. O's and men

Vehicles—

8 4-horse ambulance wagons.

1 4-horse wagon for tents.

15 2-horse wagons for stores.

3 1-horse medical store carts.

Total 27 vehicles.

Horses—

2 riding, for officials.

2 riding, for N. C. O's.

69 draught.

5 spare.

Total 78 horses.

Each hospital is supplied with 1 special and 50 ordinary stretchers, 10 boxes each with 200 sets of bandages, 50 lanterns,

and 50 bandaging knapsacks (1 of each per stretcher), 4 dressing tents, 2 operating tables, medical stores, food, etc.

RIFLE BRIGADE HOSPITALS.

The work of a rifle brigade hospital is as has been described for a divisional hospital.

Its composition is—

1 brigade surgeon commanding.

3 other surgeons.

Officials—

1 hospital overseer (commanding bearer company).

1 assistant.

21 non-combatant medical subordinates.

1 bearer company of 141 N. C. O's. and men.

32 transport N. C. O's. and men.

The vehicles consist of—

8 2-horse ambulance wagons.

15 2-horse store wagons.

2 1-horse medical store carts.

Total 25 vehicles and 56 horses.

The material carried is similar and proportionate in quantity to that carried in a divisional hospital.

MOBILE FIELD HOSPITALS.

The mobile hospital forms the third line of medical assistance, and each affords accommodation for 10 officers and 200 men. In action their position is selected by the divisional surgeon, and to them are brought the wounded from the main dressing stations. After an action they are emptied and follow their division as soon as possible. In action they are marked by flags as for a main dressing station.

The establishment of a mobile field hospital is as follows:

1 senior surgeon.

3 surgeons.

1 surgeon in charge of pharmacy.

1 hospital overseer.

1 assistant overseer.

1 accountant.

1 chaplain.

Total 9 officials.

- 7 dressers.
- 2 apothecary dressers.
- 1 veterinary dresser.
- 1 sacristan.
- 3 clerks.
- 1 sergeant-major.
- 1 quartermaster sergeant.
- 4 privates (non-combatants).
- 59 hospital attendants.
- 2 transport under officers.
- 26 transport drivers.

Total 107 N. C. O's. and men.

- 4 Sisters of Mercy, for whom a carriage, 4-horse, is provided.

Vehicles—

- 2 4-horse wagons.
- 19 2-horse wagons for stores, etc.
- 4 1-horse carts for medical stores.

Total 25 vehicles.

Horses—

- 4 riding, for officials and under officers.
- 50 draught.
- 3 spare.

Total 57 horses.

The stores of a mobile hospital comprise bedding and hospital clothing for 10 officers and 200 men, 210 bedsteads, 105 small tables, 40 stretchers, 3 large tents for 20 men, and the necessary medical and food stores.

The total strength of a divisional sanitary division is therefore—

	OFFICERS	OFFICIALS.	N.C.O'S. AND MEN.	HORSES.	CARRIAGES.
1 divisional hospital	1	6	285	78	27
2 mobile field hospitals	—	18	214	114	50
Total	1	24	499	192	77

OTHER MEDICAL FORMATIONS.

MOBILE FIELD HOSPITALS.

In addition to the two mobile field hospitals included in the sanitary division of each infantry division, there are mobilized by each active infantry division two mobile field hospitals, giving 96 in all, for general duty. Their composition is precisely similar to that of the others, and they are disposed of as required by the staff of the army to which they are attached.

RESERVE FIELD HOSPITALS.

These are established at points on the lines of communication, as may be required, 240 of them in all being maintained. They have no transport, their *personnel* and stores being forwarded by rail, boat, or by requisitioned carriage. Their composition is the same as that of a mobile hospital less the transport *personnel*, and each has—

- 5 surgeons.
- 5 officials.
- 4 Sisters of Mercy.
- 80 N. C. O's. and men.
- 5 wagons.

MILITARY SANITARY CONVOYS.

These are mobilized for the transport of the wounded and sick from the battlefield to the rear, and are in number 20. They are disposed of as required by the staff of the army. The establishment of each is as follows:

- 1 field officer (combatant) in command.
- 2 surgeons.
- 3 dressers.
- 1 apothecary dresser.
- 1 veterinary dresser.
- 1 commissary.
- 2 clerks.
- 10 hospital attendants.
- 3 transport under officers.
- 68 transport drivers.

Total 98 N. C. O's. and men.
2 Sisters of Mercy.

Vehicles—

- 27 4-horse ambulances.
- 1 4-horse kitchen wagon.
- 7 2-horse store wagons.
- 1 1-horse medical store cart.

Total 36 vehicles.

Horses—

- 4 riding.
- 127 draught.
- 6 spare.

Total 137 horses

FIELD DISPENSARIES.

The field dispensaries supply the divisional and field hospitals with all the medical and surgical stores they require. Seven in all are mobilized, and they are distributed as required. Each is provided with a supply equal to four months' requirements, and has a *personnel* of—

- 1 officer in charge.
- 2 other officials.

Total 3 officials.

- 3 apothecary dressers.
- 1 clerk.
- 17 non-combatant privates.

Total 21 N. C. O's. and men.

When required to move, transport is furnished under the orders of the army hospital inspector.

THE MEDICAL SERVICE IN THE FIELD.

It will thus be seen that, as in the British army, the medical service of Russia with the army of operations is divided into the medical *personnel* attached to the various units, the "divisional hospitals," which correspond to our bearer companies, and the field hospitals. On the lines of communication are the immobile (stationary) field hospitals, the detachments of weakly men, the sanitary convoys, and the field medical store depôts. In the home territory are the permanent, fortress and local hospitals. The military medical service is aided and supplemented by the Red Cross hospital establishment.

UNIFORMS.

The regimental medical establishments. The surgeons wear dark green tunics and trousers, with cuffs and collars, of the same color, with scarlet piping. The forage cap is dark green, with a dark green band and scarlet piping. Their shoulder pieces are narrower than those of the combatant officers, and are lined with green with silver lace. The subordinate *personnel* wears the uniform of the regiment.

FOR DIVISIONAL HOSPITALS.

Uniform and Arms.—The uniform worn by the men is the same as that of the remainder of the divisional supply and transport column, which is the same as that of the first regiment of the division, with the divisional number on the shoulder strap. The transport drivers have hatchets; the remaining *personnel* is unarmed. Except the transport drivers all wear the Red Cross badge on the left arm.

FOR RIFLE BRIGADE HOSPITALS.

Uniform and Arms.—Rifle uniform is worn by the men with the brigade number and the lazaret sign on the shoulder straps. Otherwise, as given above for the *personnel* of a divisional hospital.

FOR MOBILE HOSPITALS.

Uniform and Arms.—The uniform is the same as that of the 4th regiment of an infantry division, with the number of the hospital on the shoulder strap, their numbers running through the the army. The arms are the same as in the divisional hospital, and the Red Cross badge is worn similarly.



THE CARE OF THE WOUNDED BY THE JAPANESE IN RECENT NAVAL BATTLES.

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THE Medical Department of the Imperial Japanese Navy, through Surgeon S. Kimura of that service, has favored the Association of Military Surgeons of the United States with a copy of the report of the wounded admitted to the Sasebo Naval Hospital made by Surgeon General Totsuka, which we are glad to present as an index to the character of the injuries received and their mode of treatment by the medical officers of the Japanese Navy. The report is published in full in the Medical Journal of the Sei-I-Kwai or Society for the Advancement of Medical Science in Japan, a unique periodical published in European languages, mainly English, and in Japanese. It is accompanied also by supplementary histories of a number of the cases which will be found to be of the highest interest.

From the commencement of the War with Russia (Feb. 9th) to March 28th, the total number of the wounded admitted to the Sasebo Naval Hospital amounted to 36. Of these, 27 were wounded on Feb. 9th, when our squadron attacked Port Arthur and they were transported to Sasebo by the Genkai-maru on Feb. 13th, 2 were wounded on Feb. 24th, when the squadron intended to blockade the entrance of Port Arthur and were brought to the same by the Hospital Ship Kobe-maru on the 29th of the same month, while the remaining 7 were wounded in the sea fight on March 13th, who were transported to the same by the Hospital ship Saikyo-maru. The localities of the wounds and their subsequent course are briefly given in the following table.

THE WOUNDED ON FEBRUARY 9TH AT PORT ARTHUR.

SHIP	RANK	NAMES	LOCALITIES OF WOUNDS	COURSES OF WOUNDS.
First Squadron	Lieutenant.	K. Matsumura.	Gunshot wound of the left femur.	Skin-transplantation performed twice and little finger sized granulation remains.
"	Judge-Advocate.	K. Yoshimura.	Wounds of the left upper arm and right leg.	The first and second wounds healed on Feb. 28th and March 5th respectively without leaving hindrance for walking and left the hospital on Feb. 14th.
Mikasa.	Midshipman.	H. Sawamoto.	Gunshot wound of the nape.	Granulation went on favorably and healed on Feb. 29th.
"	2d Class Signal man.	I. Takizawa.	Gunshot wound of the left ankle.	On Feb. 14th wound was united and left the hospital on March 3rd.
Fuji.	Midshipman.	K. Ito.	Wound with loss of tissue of the right leg.	After admission an inflammation started in the connective tissue of muscles and on March 9th counter opening was made. At present the wound nearly healed.
"	Signal Boatswain.	M. Ono.	Perforated wound of the left popliteal space and the right leg.	Before admission mortification set in along nearly the whole part of the left leg and presented extreme anæmia accompanied by debility. Died on Feb. 14th.
"	Yeoman of Signals	S. Wataoka.	Wound with loss of tissue of the left femur and blind wound of inguinal region.	The first wound at first presented bleeding granulation surface, but after performance of skin-grafting it changed to benign granulation which contracted suddenly. The second wound healed on March 15th.
"	Able Seaman.	S. Sasaki.	Gunshot wound of the left shoulder and fracture of scapula.	After admission small pieces of the bone were extracted from the base of the wounds, and the surface of the wounds contracted to half size of the original form. The patient removed to Kure Naval Hospital on March 17th.
"	Able Seaman	K. Shinohara.	Contused wound of the right forearm.	At the upper third part of the right forearm an amputation was performed and slight inflammation and suppuration remained but he was transferred to Kure Naval Hospital on the 17th of the same month.

Fuji	First ordinary of sig- nals	T. Kasatani.	Gunshot wound of the right leg and fracture.	On Feb. 13th, an amputation was performed at the upper third of the right leg and on the 22d anterior mortified flap was amputated. ² After the performance of skin transplantation on March 11th, the wound became narrowed considerably.
Hatsuse	Second yeoman of signals.	T. Sakamoto.	Wound with loss of tissue of left thigh. Gunshot wound and fracture of the left lower leg; burns of the face and head; contused wound of the right great toe.	All the wounds suppurated and the patient succumbed on Feb. 19th.
"	Able Seaman	Y. Sakata.	Burns of the face, rupture of left membrana tympani and perforated wound at the outer side of the dorsum of the left foot.	Burns cured on Feb. 16th and the wound on the outer side of the dorsum of the left foot on March 2d, leaving only the rupture of membrana tympani of the left ear which gives some hindrance to hearing.
"	Able seaman	J. Tsuru.	Burns of the face and rupture of membrana tympani of both ears.	Burns healed on Feb. 27th but the ruptures of membrana tympani of both ears still remains and gives some hindrance to hearing power.
"	First ordinary seaman.	H. Enkushima.	Gunshot wound of the left knee.	After the removal of sutures on Feb. 25th the surface of wound became more open but grating was performed on March 8th, and the wound healed at present, though there is some hindrance to motion of knee-joint.
"	"	J. Sato.	Gunshot wound of the left leg and fracture.	On examination by x-ray fracture of tibia and fibula discovered, and at present the fracture healed leaving only a pea-sized wound and slight purulent discharge.
"	Leading signal man.	T. Nakatani.	Contusion of the left sterno-clavicular articulation.	As there was pain at sterno-clavicular articulation the lifting of the left upper extremity was difficult but it became gradually better and left the hospital March 20.

Hatsuse	Qualified signal man	T. Okada.	Gunshot wound under the lower jaw on the right side	Opening of the wound cured on Feb. 22d but septic cerebro-spinal meningitis occurred consequently and died on the 27th of the same month
Shikishima	First Class petty officer.	Y. Isonaga.	Gunshot wound of the right knee.	Slight inflammation appeared along the margin of the wound and effusion was found in the knee-joint. The wound healed on March 12th and the effusion was withdrawn and the patient left the hospital on the 27th of the same month.
"	Qualified signal man	K. Wai.	Gunshot wound of the left shoulder	Mortified tissue attached on the margin of wound was excised leaving the surface of the wound a size of a hen's egg and subsequently foreign bodies were frequently extracted but the healing of the wound was slow and skin-transplantation was performed on March 8th and the wound contracted to a size of a coin of ten <i>sen</i> at present.
"	"	O. Shimamura.	Perforated wound of the left calf, blind wounds of the left femur and left leg, wound with loss of tissue of the left calf.	The second and third wound contained some small pieces of iron-fragments, which were discovered by x-ray but did not extract them. The first wound was incised and grafting method was performed with the 4th wound, both of which nearly healed.
"	First ordinary seaman.	Z. Torii.	Wound with loss of tissue of the right forearm, gunshot wound of the left femur and fracture of the left leg.	The granulation of the first wound went on very slowly while the second wound suppurated very much. Later some pieces of iron fragments and those of smashed bones were extracted but pneumonia occurred as sequel and the patient succumbed on March 22d.
Iwate.	Sub-Lieutenant.	S. Takahashi.	Blind wound of the hypochondriac region.	An empyema appeared in the left chest and on Feb. 24th an opening made in the 10th intercostal space. Thus pus discharged and iron fragments were extracted and a small fistula remains, the original wound presenting a granulation the size of a grain of rice.
"	Midshipman.	T. Aoki.	Gunshot wound of the left arm and contusion of the left thoracic cavity and the left forearm.	The first wound united on Feb. 26th and contusion disappeared after a few days. The patient left the hospital on March 10th.

Iwate	Warrant Officer.	T. Osuni.	Perforated wound of the left shoulder.	After admission pieces of cartilage of the joint were extracted from the exit aperture. The entrance aperture healed on March 5th, but the former contracted to the size of a grain of rice and leaves granulation. Thus the movement of the joint is hindered.
"	First Ordinary Seaman.	K. Tanaka.	Perforated wound of the right upper arm and blind wound of the right chest.	The first wound nearly healed at present but empyema occurred as the sequel of the second wound, and excision of ribs performed on Feb. 27th and March 19th. From that time the course of wound went on favorably.
"	Second Ordinary Seaman.	G. Matsumoto.	Blind wound of the right chest.	As the healing of the wound was very slow the skin-transplantation was performed and surface of the wound presented benign granulation which size is equal to that of the tip of the little finger.
Yakumo.	Midshipman.	I. Kuwabara.	Blind wound of the right ilium and wound with loss of tissue of the left femur.	On the day of admission to the hospital pieces of iron fragments and of clothes were extracted from the first wound while the grafting method was applied to the second wound. Thus the surface of both wounds have contracted, the pus discharge having decreased.

THE WOUNDED ON FEB. 24TH ON THE OCCASION OF THE
BLOCKADE OF PORT ARTHUR

Shikishima.	Able stoker.	K. Takeno	Blind wounds of the right back, right upper arm, right elbow, right femur and the leg.	Every wound went on without serious inflammation or suppuration and the first wound healed on March 10th after secondary suture on the 10th of the same month, and the second wound healed on the 10th of the same month, the fifth wound on the 12th, the third wound on the 28th after the perforation of secondary suture and the 4th wound on the 27th respectively.
Shikishima.	Leading stoker.	K. Fujimoto.	Blind wound of the right femur.	No sign of inflammation or suppuration and crust was formed on March 9th and began to exfoliate gradually. The patient left the hospital on March 27th.

THE WOUNDED ON MARCH 10TH AT PORT ARTHUR.

Kasumi.	Engineer.	Y. Minamizawa.	Blind wounds of the right chest, the left femur, and the left knee.	The first wound contracted very much after slight inflammation and suppuration presenting benign granulation. No foreign bodies discovered by X-ray apparatus. The second wound contracted now to the size of a <i>5 rin</i> coin, and the third wound healed by scabbing.
Akebono.	Second Class Sub-Lieutenant.	I. Shima.	Perforated wound of the right femur.	The exit aperture of the wound covered with scabs but the entrance opening of the wound was full of fibre like threads which were quickly washed away. The course of the wound very favorable and now contracted to the size of a copper coin of <i>5 rin</i> .
Kasumi.	Engine Room Artificer.	T. Tomigawa.	Gunshot wound of the left cheek with fracture of the maxillary bone. Abrasion of the left shoulder and blind wound of the left upper arm.	The first wound leaves a finger-sized surface at the posterior and superficial margin of the wound and saliva was at first seen but it ceased after a few days. The wound of the cavity of mouth nearly healed after the extraction of fragments of the crushed bone and injured teeth. The second and third wounds also going on favorably.
Asashio.	Leading Seaman.	Y. Miura.	Gunshot wound of the right temporal region.	The wound healed on March 27th without accompanying inflammation or suppuration.
Kasumi.	Leading Stoker.	K. Inago.	Gunshot wound of the right temporal region with fracture of zygomatic bone.	The suture was removed on March 16th and the greater part of wound healed at the first intention. Benign granulation equal to the size of a pea and that equal to the size of the tip of a little finger remain at the external canthus and the temporal region respectively.
Sazanami.	"	K. Umegh.	Gunshot wound of the right arm and perforated wound of the back of the hand and the right knee.	The first wound formed a benign granulation equal to the tip of a little finger. The second wound healed on March 28th. The third wound contracted to a narrow and long wound and discharged a small quantity of pus.
Shinonome.	Able Seaman.	S. Matsnaka.	Concussion of the labyrinth.	The hearing power is recovering gradually.

Of thirty-six wounded admitted to the hospital four persons died, eight left it after recovery, and two were transported to the Kure Naval Hospital as above mentioned. So, the wounded remaining in the Sasebo Naval Hospital are 22 at present. The condition of these cases is generally favorable and some of them will leave the hospital in a short time. The other cases are gradually recovering without any danger to life.

The wounds produced from sea fights are generally caused by bursting of shells and inflict two or more injuries to one body as will be seen by the above table. To describe minutely these wounds is out of the question. So, slight exfoliation, contused wounds, and burns, are omitted here, and only principal wounds stated in the table. But the total number of wounds for 36 persons amounted to 62, that is two wounds per person. Some of these wounds have only small external apertures equal to size of a pea but others are so large that whole limbs were mutilated completely. Besides the forms of wounds which do not belong to these above stated are various but they may be classified as burns, abrasions, contusions, blind wounds, perforated wounds, and wounds with loss of tissues. Some of the wounds were accompanied by fracture of bones or injury of important vessels but others were not. The causes of the wounds were attributable to bursting of shells in many cases but sometimes the wounds occurred from direct contact of shells (as in Ito and Aoki). It is very difficult to distinguish whether contusions or blind wounds were originated from shell-fragments or caused by foreign bodies scattered from surrounding matter in cases where foreign bodies were already extracted. But they must have been chiefly caused by the penetration of shell fragments because the wounds have generally reached the deeper part of the body. At the same time it is very noticeable that most of the wounds caused by the penetration of shells are blind, and perforated wounds are rather few as compared with bullet wounds. Such phenomena may be caused from the inertia of flying power of shell fragments which is weaker than that of bullet wounds, and another noticeable fact is that two cases of burns of faces (K. Sakata and J. Tsuru) were complicated by the rupture of membrana tympani. This seems

to prove that at the time when the shell fragments burst the men received strong concussion of the membrana tympani together with burns of the face. In two cases of blind wounds of the thoracic cavity (Sub-Lieutenant Takahashi and First Ordinary Seaman Tanaka) the existence of foreign bodies were not discovered by the surgeon when they were admitted to the hospital. But both of them had empyema as sequelae after some time. And then shell fragments and pieces of crushed bones were suspected. This proves that wounds near the important regions of the body require most careful examination.

The condition of the wounded when they were admitted to the hospital is of course different according to the length of time elapsed since the infliction of the wound and the method of treatment received before their arrivals. The first cases were admitted to the hospital four days after they were wounded, the second cases five days after treatment was given, while the third cases three days after; though there are some difference in the length of time, we shall summarize briefly the progress of wounded below. All these cases already passed the first period of wounds, i. e. hemorrhage ceased and tissues in wounds crushed by shells began to putrefy and inflammation of reaction appeared at the margin of wounds. The openings of some bigger wounds were generally covered with dark grey putrid tissue and healthy red granulation was not yet formed. Those which were already sutured were beginning to unite at some parts but they were mostly surrounded with red congested rings and pus discharge was sometimes seen at different spots. Small contused wounds or perforated wounds were already filled with coagulations and seemed to be healing without any sign of inflammation or suppuration. In the bigger wounds, however, large quantity of excretion resembling dark red serum oozed out through the dressings, and some of them had bad smell and presented clearly the symptom of suppuration. On examination of the wounds from which foreign bodies or shell fragments were known to have been already extracted, yet small pieces of clothes or bony pieces crushed by shells were gradually extracted a few days after admission to the hospital. The spirits of the patient were high and full of pleasant memories and there was no sorrow or lament about the wounds or injuries they had received except in a few serious cases.

All the cases except those who had fractures seemed to have no pain. The temperature of some serious cases rose above 38° or 39.°5 but most of them hardly reached 38 degrees. The appetite of the patients was normal and the most of them preferred to take ordinary diet to that regulated for patients.

We shall now describe briefly the management of wounds and injuries in the hospital. When the wounded were admitted to the hospital the forms of wounds and injuries were carefully examined after the dressing of the wounds was removed under complete antisepsis. If application of bougie was necessary it was used with great care. In cases where the wound was distended the sutures were removed. If an amputation or complicated operation for wounds was necessary the proper treatment was given in the operating room. When the surface or margin of wounds was clean they were simply wiped by wet compress with sterilized water, and sterilized and disinfected gauze was applied and bandaged. On the contrary, when the surface of wounds presented the signs of suppuration or the fluid excreted from wounds had a bad smell or wounds had fractures of bones as their complication, perchloride of mercury which was dissolved in 3000 times water was used to wash the wounds, iodoform gauze was applied or baro-salicylic powder was distributed, and bandaged. Careful examination for shell fragments, foreign bodies, and fracture of bones was generally made after the first change of dressing. Then examination by x-ray and other minute examination was performed as a common routine.

The result of the treatment of wounds and injuries was generally favorable, and small blind wounds, or perforated wounds, which were equal to those of calibres of muskets, generally healed within two or three weeks without presenting any sign of suppuration. Even the bigger wounds, equal to the palm or even larger when not accompanied by fracture of bones or with loss of tissue, generally healed without presenting any symptom of phlegma or inflammation by producing healthy granulation after the separation of the mortified tissue of wounds. A few cases, however, discharged pus in large quantity and healing of wounds was very slow. This was entirely attributable to the fact that the wounds contained pieces of clothes or bones crushed into them by shells. Preservative treatment was applied for cases which had fracture

of bones as a complication and their progress was all well except in one case of fracture of the femur (J. Torii).

After admission of the wounded to the hospital four cases terminated in death. These cases of deaths are briefly as follows: (1). Ono, Signal Boatswain: This patient's left lower extremity was already mortified and presented a dark purple color below the knee-joint when he was admitted to the hospital. The right leg was also cold and senseless. Besides he was very anæmic and greatly prostrated. Under such circumstances no operation could be performed, and he succumbed the following morning. The cause of death may be attributable to excessive hæmorrhage occurring from the injury of the popliteal arteries and obstruction of the circulation of the left lower extremity. (2). Sakamoto, Second Yeoman of Signallers: In this case the left leg was amputated about two inches below the knee-joint after admission to the hospital. Besides, the first metatarsal bone of the right foot was contused at its extremity and at the posterior part of the left femur there was a big contused and lacerated wound nearly equal in size to both palms put together. Moreover, the face and head had several small contused and lacerated wounds. The temperature of this patient was very high even at the time of admission, the surface of wounds were very dirty, plentiful putrid fluid was discharged and the condition of septic fever was clearly seen. He died on the sixth day after admission to the hospital. (3). Okada, Qualified Signaller: At the time of admission, the posterior part of the lower jaw (right side) had little finger sized blind wound. At first the presence of shell fragments were not suspected but we thought they had stopped at the neighboring part of the vertebral column, perforating some part of the pharynx, because of a discharge of sputum mingled with blood, dysphagia, strong bad smell on expiration, and severe pain of the neck after the infliction of the wounds was noticed. Nevertheless, the aperture of entrance of gunshot was closed and no foreign body was seen in the mouth cavity. In addition to these, paralysis of the upper and lower part of the left extremity appeared and the patient succumbed on the 29th of the same month. By postmortem examination, the passage of shell fragments through the right side of the epiglottic cartilage and the third vertebral bone and penetration to the left

semilateral part of the spinal medulla was found. For a case with such serious wounds no relief was to be found except death. (4). Torii, First Ordinary Seaman: This case had a wound with loss of tissue inflicted on the right upper arm and severe compound comminuted fracture of the upper part of the left femur. Early operation for such a serious case under so dangerous condition is, of course, a question. So, we intended to manage this case by conservative treatment, and extracted some pieces of shell fragments and a few bone pieces. But all efforts to prevent suppuration were unsuccessful and he succumbed through septic pneumonia on the 20th of February.

The above mentioned number of cases is only thirty-six and so few instances of the wounded are not, of course, sufficient demonstration for general character of the gunshot wound. But if we think over the past progress and course of the wounded, the results of the wounds might be considered to be generally good. For example, many cases of some small contused wounds or perforated wounds have generally healed in the first period of the union of wounds. For severe contused and lacerated wounds suppuration followed more or less but inflammation of high degree in the wounded region or traumatic infectious diseases as sequelae of the wounds were almost nil. The temperature generally became normal soon after admission to the hospital and the union of wounds went on comparatively favorably and quickly. The causes of the good results we obtained are attributable to the modern progress of surgery and good management of the wounds. In other words, the good results are the gifts of the careful attention and earnest service of our naval surgeons on board the warships, hospital ships and transports, who were most earnest and prompt in the treatment of the first period of wounds and injuries at the battles. The courses of the second and third cases who were transported to Sasebo Naval Hospital by the hospital ship were better than those of the first cases who were sent back by a transport. This clearly shows that the hospital ship which has everything ready for the treatment of the sick and wounded is superior to the common transport in the point of management of the sick and wounded. In future, we hope, the hospital ships may be employed to transport the cases of sick or wounded, as much as possible.

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BRIGADIER GENERAL CHARLES HENRY CRANE,
SURGEON GENERAL U. S. ARMY, -1882-1883.

Editorial Expression.

The Surgeon Generals of the United States Army.

XIII. BRIGADIER GENERAL, CHARLES HENRY CRANE
SURGEON GENERAL OF THE UNITED STATES
ARMY—1882-1883.

PROMOTION in the Army which had been almost at a standstill for years owing to the uniformity in age and endurance of the great number of officers who had come into the service during and just after the War of the Rebellion, was galvanized into activity by the adoption of an enforced retiring age. As soon as it became evident that such provision was likely to become law and that it would inevitably produce a vacancy in the Surgeon Generalcy, a general movement toward the succession took place among the senior medical officers of the service. At this time appeared the candidacy of Colonel J. H. Baxter, which was to be an active factor in the contest for the office in the case of each vacancy thereafter until success crowned the undertaking in 1890. Colonel Charles H. Crane, however, had been Assistant Surgeon General for many years and it was an entirely expected result, when the appointment came to him.

Charles Henry Crane was the son of Captain (afterward Colonel) Ichabod Bennet Crane of the Artillery and was imbued with military tendencies from his earliest years. Born at Newport, R. I., July 19, 1825, he enjoyed the delights of garrison life until he was of an age to be placed at school, when he was duly entered at Maple Grove Academy in Middletown, Conn., where he received his preparatory education. In 1844, after the customary four years course, he was graduated B.A. from Yale which institution also conferred the M.A. in cursu upon him in 1847.

In 1847 he also completed his medical studies at Harvard and received his doctorate. His heart went out to the service in

which he had been bred and he lost no time in appearing before the Army Examining Board and on December 11 of the same year passed successfully and became an approved candidate for a commission. Pending his appointment, as was then the custom, he was given a contract as Acting Assistant Surgeon and assigned to duty with a detachment of troops en route to the scene of hostilities in Mexico, and arrived at Camp Washington, near Vera Cruz, February 20, 1848. Meanwhile he had been commissioned as an Assistant Surgeon since February 14. He then continued in Mexico for the ensuing six months when he was ordered to New York.

After a short time at Fort Columbus, New York, he accompanied a battalion of the 2nd Artillery to Fort Monroe, whence he proceeded to Fort Pickens, Pensacola, Fla. and began a three years tour of duty in the Floridian peninsula with service at Key West Barracks, St. Joseph's Island, Forts Pickens, Brooke, Fraser, Casey and Myers, and with expeditionary forces in the field. His next duty carried him to the Pacific coast, whither in 1852, he sailed from New York on the steamer "Falcon" carrying recruits to California. He passed four years west of the Sierra Nevada, serving at Benicia Barracks and Fort Jones, Cal. and at Forts Lane and Yamhill, Oregon. Much of the time however, he was in the field, including expeditions against hostile Indians near Merced River, Cal. and in the Sacramento Valley in 1852, while his Oregon service in 1853-1856 was full of Indian service, conspicuously in which was an expedition against the Rogue River Indians in 1856 upon which occasion he was highly commended for distinguished service.

In 1857 he returned again to the Atlantic Coast where he remained on purveying and examining board duty for two years. In 1859 he accompanied Lieutenant General Scott on a diplomatic visit to San Juan Island and remained until 1862 on duty as attending surgeon at army headquarters, receiving meanwhile, May 21, 1861, his promotion as Major and Surgeon.

In February, 1862, he was detailed as Medical Director of the Department of Key West, Fla., and in June of that year he became Medical Director of the Department of the South, whence

in July 1863, after awaiting orders for a short time in Washington he was assigned to duty connected with Prisoners of War, until September.

At this time his friend Colonel Barnes was detailed as Acting Surgeon General and he was himself detailed as principal assistant in the Surgeon General's Office. He soon displayed remarkable executive ability and such exceptional adaptability to his position that he was retained in it until his promotion to the Surgeon Generalcy in 1882,—nineteen years. During the remainder of the war, however, Colonel R. C. Wood retained the rank and title of Assistant Surgeon General to which he had been promoted in 1862, although he was not on duty in the office, until in accordance with the Act of April 16, 1862, he was honorably mustered out and returned to the rank of Major. This opened the way for Major Crane to be promoted to a grade corresponding to the functions he had been performing for nearly three years and promptly after the passage of the Act of July 28, 1866 fixing the peace establishment of the Army, he was appointed Assistant Surgeon General with the rank of Colonel. In March 1865, he received the brevets of Lieutenant Colonel, Colonel, and Brigadier General "for faithful and meritorious services during the War of the Rebellion."

General Crane was the wheel-horse of the Surgeon General's Office. The pyrotechnic side was carried on by General Barnes, who was possessed of marvelous diplomacy and never-failing tact. The detail work however fell to Colonel Crane. "In connection with the arduous and important work connected with the latter years of the War of the Rebellion" said Major Huntington, "his sound judgment, delicate sense of justice and right, his deliberate action and fine decision soon won for him an enviable reputation and materially assisted in raising the Medical Corps of the Army to the high degree of discipline and efficiency which has characterized it in the past and present."

On July 3, 1882, he was appointed Surgeon General of the Army. The new position demanded little change in his duties. For many years he had been most assiduous in his devotion to the work of the office and he now simply continued to manifest

the same patient, earnest and punctilious attention to the affairs of his department. He had the pleasure of seeing the completion of the Surgical part of the Medical and Surgical History of the War of the Rebellion and of getting the final medical volume well under way in the hands of an officer whom he had selected for the duty.

Personally he was possessed of a kindly and generous spirit and characterized by a strong and dignified bearing. His unexpected demise on the 10th of October 1883 was a shock to his Corps and to the service for which he had labored so long, so faithfully and so successfully.

A PLEA FOR A HIGHER, PHYSICAL, MORAL AND
INTELLECTUAL STANDARD, FOR THE PER-
SONNEL OF THE NAVY.*

THE reader interested in the subject of which this paper treats, cannot fail to perceive, that it is written by one, who speaks whereof he knows; by one who has a considerable credit in the sea-service column of the Naval Register, who entered before the sailing craft was obsolete, yet who is young enough to keep up with the New Navy.

The style is strong, cogent, terse English, which at times reminds us of the writings of Lind, Sir Gilbert Blane, or Trotter, when fighting the great sanitary curse of the ships in the British Navy in the 17th and 18th centuries.

Is it not a singular fact, that in this advanced age of thought, one would find it necessary to seriously argue, the question of the requirement of robust health in the trying vocation of a sailor? Yet we see it here, and futhermore, strange to relate, there is need of it,—the custom of waiving rejections for physical cause, so common heretofore at the Naval Academy, has worked a wrong to the official personnel of the Navy, and to the State, and it cannot be denied that parents as a rule are oblivious of any obliquity, if they can but succeed in embarking their wards in the service, even

*Medical Inspector Howard E. Ames, U.S.N. *Proceedings of the U.S. Naval Institute.* Vol. XXX, No.1.

though often it can be shown, that such a life will be directly detrimental to the individual most concerned. In this connection Medical Inspector Ames writes " 'Physical soundness, is a vague condition in some respects, and leaves open many questions that are of the greatest importance; such as weight for age, weight for height, height for age, chest-measure for age. The limits now given are too broad and not finely enough' adjusted. There is unfortunately no law regarding these factors which are of the greatest importance, in measuring the physical qualifications of the candidate. The circulars sent out by the Department have varied, and none of them were based on a careful study of the subject in its ultimate bearings on the needs of the service, and I do not hesitate to say, that the matter today is in a most unsatisfactory state and gradually growing worse."

It is only fair to state in this regard, that the subject of waiving the finding of the Medical Board at Annapolis, for physical defects, has recently been fully considered by the Navy-Department, and instructions issued, which while leaving a wide limitation of discretion with the examining officers, have tended in every way, toward the recognition of a higher physical standard. At the recent session held at Annapolis there were 56 rejections, in 341 examinations; the finding of the Board being sustained in every instance. Nevertheless there is but little question of the need of a more definite standard, for as the Board changes its personnel every year the requirements must vary likewise.

Allusion is made to the useful work of Surgeon H. G. Beyer, U.S.Navy, and its anthropological value, and it is remarkable, that his work, has never been availed of to establish, or assist in establishing, the "juste milieu," of physical requirements for admission to the Naval Academy. The wide field of evil consequences of physical defects, sustained by a large personal experience, is discussed with clearness, and ability, and the fact that in the examining-room is the place to safeguard the interest of the State, and give it "the benefit of the doubt" is happily and strongly pictured. All will sympathize with the writer in his plea for a higher standard of height especially. He writes "it is sophistry to argue in favor of a small man for military purposes,

particularly an officer; he cannot have a military personality no matter what his intellectual attainments." "Enlisted men generally judge an officer by his outward appearance. It can be set down as a principle that a small man is rarely a successful officer." "Are we asking too much to fix the standard of minimum height for the graduate at 5 feet 6 inches, when the mean for our people is 5 feet $7\frac{3}{4}$ inches?"

There can be but little doubt of the desirability of body-weight being at graduation 2 pound to the inch in height.

Indeed if the regulations requiring "robust" physique were followed, candidates for admission would closely attain this figure. Of 35 candidates admitted this year at Annapolis between the ages of 16 and 17 years, the average height was $67\frac{2}{3}$ inches the average weight was $132\frac{2}{7}$ lbs. With a very considerable experience, both in the training-service and on the Board of Examiners at the Naval Academy, I am of the opinion, that while standards of development should be ascertained as accurately as possible, and promulgated by authority, a reasonable amount of discretion should be vested in the Examining Board. In this matter of growth and development, and what should be attained in a given number of years, there are factors, beyond the ken of the statistician, and they will be best solved by the conscientious and careful examiner, who has the candidate before him, and in forming his opinion judiciously considers these factors in connection with the many other vital questions, involved in a given case.

There is no doubt that the teeth, not only as to their fitness for proper mastication, but as an index of the constitutional condition, have not received the careful consideration which is demanded. The ills arising from their neglect are all truthfully laid down. No thinking Examiner can reflect to-day, on the large number of cases presenting, in which the young have lost so many permanent teeth, with the remainder carious, without grave apprehension as to the future in this regard. A competent dentist has been attached to the Board at Annapolis and the exact number, and condition of the teeth, occlusion and the formation of the maxillaries, are given full weight.

That Medical Inspector Ames is no apologist for the work of his Corps is quite evident. He arraigns in no enviable manner the

work of recruiting parties now traveling the country-side, in quest of men of war. He deprecates very justly, the hurried way in which this important duty is done; justly remarks in case of a vaunted number of examinations made in a remarkably short time "that instead of commendation a few words of reproof were merited by that party." Passing from the physical and intellectual aspects of this important subject to its moral relations, the writer adopts as his text "Good health is the basis of all physical, intellectual, moral and spiritual development." He continues "the ability to judge the morals of a man by inspection is a difficult matter, but the brain impressions and mind force are reflected on other parts of our body, so that some knowledge can be obtained by a study of the appearance and the movements of the man, the facial expression and his replies to questions;" the man "with maimed ears, and long cicatrices from knife cuts"—as indicative of deformity and degeneracy; the men who Mahan says "attach no wrong to the violation of a contract, hence desertion. Equally they have no sense of their dignity as men, nor the beauty of self-control, hence drunkenness, unaccompanied by any sense of shame." The writer's characterization of the worthy old-time salt is equal to Thomas Trotter's eulogy on the British seamen of his day—"He stands naked before me for his last active-service examination; and I note the eagle and our flag upon one arm, and on the other, Faith, Hope, and Charity. I see the faded tattooed cross upon his wrinkled, weather beaten breast, which throws his short-comings in the shadow; the pressure of his hard, but generous hand, and the fearless honest look of his eyes, is kindness and all else."

The conversion, and evolution of the modern, intellectual high-type seaman, who mans our ships of war, his life, work, aspirations, needs, are graphically told.

The difference between the happy ship (painted white), and the unhappy ship (painted black), is a philosophical disquisition, in lighter vein, which should be seriously pondered, whenever a squadron puts to sea, by every one from the Commander in Chief down to the Jack of the deck.

A thoughtful paper of this character cannot be dissected. It should be read as a whole by every one interested in the personnel of our naval service.

JOHN C. WISE.

Current Literature.

THE SANITARY SERVICE IN THE FIELD.*

IN this publication, the essentials of the science of the terrain are presented for the information of the Sanitary Officer, to enable him to apply such knowledge in the exercise of his professional services in the field. The subject is presented under the following three headings:

1. Description of the Terrain, under the subdivisions: Topography, Hydrography, Orography, and Chorography; its relation and bearing to climate, health, population, character of land, and its state of cultivation, its resources, also means of communication, etc.

2. Representation of the terrain: By sketches and by military charts, which must show relative elevations, and all objects of importance, as water courses, bridges, fords, settlements, woods, roads, railroads, etc. A list of the symbols which are used on these charts to designate the various objects of importance, is given.

3. Application of the science of the terrain for the Sanitary Service: This chapter treats of the practical deductions, which result from a study of the military charts, and gives the indications for the proper disposition of the sanitary force, under various conditions. In this connection reconnaissances by Medical Officers are also discussed. The selection of suitable sites for dressing stations, is very fully gone into. Among the fixed rules laid down are the following: Fords in water courses can be used with safety, by sanitary vehicles, when the depth of the water does not exceed 60 cm., and the current is not swifter than 1.3 m., per second. Packed snow can be used as shelter from rifle fire when it has a thickness 1.5 m.

*A Compendium on the "Science of the Terrain," for Military Sanitary Officers. *Gelände und Feld-Sanitätsdienst. Ein Compendium der Terrainlehre für Militärärzte, Militärärztliche Publicationen Nr. 57, Mit 156 Figuren im Texte*, 8vo: pp, 128. Wien, Verlag von Josef Safar, 1901,

Grades up to 3% form no special obstacle for vehicles, or stretcher bearers. From 3 to 5% they impede the progress of bearers, and oblige vehicles to proceed at a pace. From 5 to 10% they form a considerable impediment to both. At 10 to 15% they can only be used with the greatest effort by the stretcher bearers, not by vehicles; at 15 to 30% they can only be used by specially trained bearers, etc.

For the estimation of distances, the following are amongst the rules given: At 2,500 paces, moving individuals, can be distinguished from the field. At 1,500 paces individuals, at rest, can be distinguished. At 1,000 paces the head of a horse can be differentiated from the rider. At 600 paces the head covering of a man can be distinguished; at 300 paces the face. At 4,000 paces the cross can be distinguished in the Geneva flag.

In the orientation in the terrain, the compass, the chart, the position of the sun or moon, are the means of determining the position.

The booklet concludes with a series of questions, which have to be answered from a study of the chart. A key to these questions is given.

F. W. F. WIEBER.

VON BERGMAN'S SURGERY.*

THE second and third volumes of this excellent publication have so promptly followed the first, that a prompt completion of the whole in a very short period is assured.

The second volume contains the surgical diseases of the neck, thorax and spinal column, giving the latest and most up-to-date methods of examining and treating the diseases of these regions. The methods of treatment for spinal troubles in this volume differ much from our American methods and in some instances are an apparent improvement; the surgeon will do well to investigate them carefully.

***A System of Practical Surgery.** By Drs. E. VON BERGMANN, of Berlin, P. VON BRUNS, of Tübingen and J. VON MIKULICZ, of Breslau. Edited by WILLIAM T. BULL, M.D., New York. Volume II. 820 pages, 321 engravings, 24 plates. Volume III. 918 pages, 595 engravings, 21 plates. Philadelphia and New York, Lea Brothers & Co., 1904.

Volume III is devoted to the surgery of the extremities. From a careful review of the contents one is fully convinced of the thorough understanding of the subjects presented by the various authors. This volume, to the general practitioner, will prove the most valued one of the series. While he may miss a few suggestions and methods contained in our best and latest American text books, yet these are so fully understood that it does not detract from the value of this work that they are missing, as they are supplanted by many new suggestions that will prove valuable when tried.

The illustrations and plates are more numerous than in the first volume and add greatly to the value of the book. A.R. ALLEN

THE DOCTOR'S LEISURE HOUR.*

THE Doctor's Recreation Series, promised for several years, brings out its first volume in "The Doctor's Leisure Hour," a compilation of sketches, poems, skits and incidents relating to medicine and the physicians. The book will well fulfill its purpose to lighten the needed hours for rest of the practitioner and as well afford to his clients an enjoyable series of illustrations of the physician's life, the perusal of which can not but be of advantage to the medical adviser of the reader's family. It is hoped that this delightful work will have a wide circulation.

The second volume of the Doctor's Recreation Series fully sustains the promise of the first, containing as it does twenty-two interesting selections from current fiction with reference to the medical practitioner. Among these may be mentioned Conan Doyle's "Doctors of Hoyland" Ian Maclaren's "Doctor of the Old School," Henry Seton Merriman's "On the Indian Frontier" together with others of fully as high grade of interest. The

The Doctor's Recreation Series. CHARLES WELLS MOULTON General Editor. Volume I. **The Doctor's Leisure Hour.** Facts and fancies of interest to the Doctor and his patient. Arranged by PORTER DAVIES, M.D. 8vo: pp. 352; 4 plates. Volume II. **The Doctor's Red Lamp.** A book of short stories concerning the doctor's daily life. Selected by CHARLES WELLS MOULTON. 8vo: pp. 343, 4 plates. Akron, Ohio, The Saalfeld Publishing Co., 1904.

plates are reproductions of celebrated paintings and add much to the value of the sumptuous setting provided for the work by the publishers.

ROENTGEN RAY DIAGNOSIS AND THERAPY.*

THIS is one of the most elegant medical works that we have ever seen,—printed upon extra heavy enameled paper beautifully bound and handsomely illustrated with a profusion of most instructive plates. Dr. Beck is well known for his expert knowledge of the Roentgen Ray and, in writing upon the subject, speaks with authority. The work is divided into three sections, treating respectively of the subject from (1) the general, technical standpoint, (2) the regionary clinical standpoint, and (3) the effects of the Roentgen Ray. In the technical part the instruments and methods of their employment are fully and clearly described, while in the clinical part the author takes up the application of the process to various regions, closing with the consideration of the medico-legal aspect of the Roentgen Ray, while in the final section he speaks more specifically of the therapy, touching upon the Finsen light method, the Becquerel Rays and Radium, and concludes the work with an exhaustive bibliography.

DISEASES OF THE INTESTINES AND PERITONEUM.†

ANOTHER handsome volume of Nothnagel's Practice, under the American editorship of Professor Alfred Stengel, comprises the eighth in the series and covers the subject of diseases of the intestines and peritoneum. This volume is of particular interest because of its being the work of Professor Nothnagel himself and bears evidence on every page of the careful painstaking and exhaustive industry typical of the German

**Roentgen Ray Diagnosis and Therapy.* By CARL BECK, M.D. 8vo; pp. 460 with 322 illustrations: New York and London, D. Appleton & Co. 1904.

†*Diseases of the Intestines and Peritoneum.* By DR. HERMANN NOTHNAGEL of Vienna, Edited, with additions, by HUMPHREY D. ROLLESTON, M. D., F. R. C. P. Octavo volume of 1032 pages, fully illustrated. Philadelphia, New York, London; W. B. Saunders & Company 1904.

scientist. The book has been further adapted to the English speaking practitioner by the work of Dr. Rolleston so well known as one of the most competent and accomplished of English physicians. Appendicitis is particularly conspicuous in the work and is treated thoroughly from the medical standpoint. Occlusion and stenosis of the intestine are discussed in full and the section on intussusception has had the advantage of special treatment by Mr. D'Arcy Power. The work closes as usual with a complete bibliography.

INTERNATIONAL CLINICS.*

THE valuable quarterly publication, *International Clinics*, presents in the second volume for 1904 a series of timely, practical and original articles with excellently executed and clearly explanatory illustrations. The opening article is on the spread of diseases by insects by Major Charles F. Mason of the Army and is followed by a series of other papers upon diseases of warm climates, which are of the greatest interest to military and naval officers. Treatment, medicine, surgery, pediatrics and rhinology are also well represented.

CASE TEACHING IN SURGERY.†

THIS little work, prepared for the surgical classes of Harvard University, consists of statements of the history of seventy-five surgical cases upon the even numbered pages of the book, the odd numbered pages opposite being left blank for the student's diagnosis, prognosis and treatment. It will be found a most valuable and useful assistant to the teaching of surgery everywhere and the authors are to be congratulated upon the original thought which inspired the preparation of the work as well as upon the practical and efficient manner in which it has been worked out.

**International Clinics*. Edited by A. O. J. KELLY, M.D. Fourteenth Series. Vol. II. 8vo; pp. 314. Philadelphia, J. B. Lippincott Co., 1904.

†*Case Teaching in Surgery*. By HERBERT L. BURRELL, M.D. and JOHN BAPST BLAKE, M.D. 12mo; pp. 160; Philadelphia, P. Blakiston's Son & Co., 1904.

SENN'S NATIONAL RECREATION PARKS.*

IN the publication of this little book Colonel Senn gives us a new view of the travels with which he is accustomed to rest his faculties strained by the severe work of a strenuous surgical practice. The need of such a work has been felt by many who have been interested in the Yellowstone and Yosemite, and this capital little book will amply supply this demand.

CLOSURE OF LAPAROTOMY WOUNDS IN GERMANY AND AUSTRIA.†

THIS little monograph is composed principally of extracts from letters received from nearly sixty of the leading surgeons of Germany and Austria upon the subject of the closure of laparotomy wounds and, including the opinion of the principal operators of those countries, comprises a most instructive and valuable compilation.

THE SURGERY OF THE HEART AND LUNGS.‡

THE existence of so extensive a monograph as this upon the surgery of the heart and lungs, organs which but a few years ago it would have been considered homicidal to touch, is a most gratifying index to the progress of the art of surgery. The author opens each section of his work with a discussion of the anatomy of the organs. He then proceeds with a full discussion of the surgical conditions which are applicable to them. His chapter upon gunshot, lacerated and incised wounds is one of his most complete and records a number of interesting cases of surgical interference. He then takes up a lengthy account of his experimental research on the heart of the dog, re-

*Our National Recreation Parks. By NICHOLAS SENN, M.D., LL. D., Surgeon General of Illinois; 16mo.: pp. 147, 48 full page illustrations: Chicago, W. B. Conkey & Co., 1904.

†The Closure of Laparotomy Wounds as Practiced in Germany and Austria. Edited and translated by WALTER H. SWAFFIELD, F. R. C. S., M. D. 8vo. pp. 72; Philadelphia, P. Blakiston's Son & Co., 1904.

‡The Surgery of the Heart and Lungs. By BENJAMIN MERRILL RICKETTS, Ph.B. M.D. 8vo: pp. 510, with 87 plates. New York, The Grafton Press, 1904.

lating in full detail nineteen cases of cardiac operations, the large proportion of which were fatal. The section relating to pulmonary surgery is fuller and naturally more practical than that relating to cardiac interference and also closes with a series of experimental operations. Every phase of the study is accompanied with an exhaustive bibliography,—so full indeed that the bibliography in some cases occupies more space than the text which it illustrates. The book is a valuable study and forms a landmark in surgical work.

SURGICAL DIAGNOSIS.*

THIS little work is intended mainly for dressers and junior practitioners and is an excellent simplification of the means of obtaining a correct diagnosis in surgical cases. The author's methods of procedure are clear, definite and explicitly stated. Careful observation of his rules will be of the greatest advantage to the young practitioner or to him of longer standing in the profession but with comparatively little surgical experience. It is a capital little book.

THE CLINICAL STUDY OF BLOOD-PRESSURE.†

THIS handsome monograph is a valuable contribution to the advanced and detailed study of medical subjects and will prove of great advantage to the many progressive medical men who desire to carry their work beyond the limited fields necessarily outlined in the medical college text books. The book forms a complete and instructive guide to the use of the sphygmomanometer in medical, surgical and obstetrical practice together with a summary of experimental and clinical facts relating to the blood-pressure in health and in disease. The author invites attention to the fallibility of the sense of touch in determining the vascular tension and believes that more careful considera-

**A Manual of Surgical Diagnosis.* By JAMES BERRY, F.R.C.S. 12mo; pp. 363. Philadelphia, P. Blakiston's Son & Co., 1904.

†*The Clinical Study of Blood-Pressure.* A Guide to the Use of the Sphygmomanometer. By THEODORE C. JANEWAY, M.D. 8vo; pp. 300 with 75 illustrations. New York and London. D. Appleton & Co., 1904.

tion of the blood-pressure will add materially to the efficacy of both diagnosis and prognosis and be of much use in determining therapeutic action. The subject is considered in three parts, (1) physiological, (2) technical and (3) clinical, under which the history, methods and conclusions are exhaustively treated.

POLK'S MEDICAL REGISTER.*

THIS standard publication comes to us for the eighth time and presents all the familiar features which have made it so useful in the past. As would be natural in case of a work of the kind some of the information has been supplanted by later modifications, although that referring to the Association of Military Surgeons of the United States and its JOURNAL is up to date and entirely correct. The book will continue in the future as in the past to contribute to the best interests of the profession.

ALKALOIDAL THERAPEUTICS.†

THE alkaloids have been growing in importance and professional prominence particularly during the last few years. The most enthusiastic propagandists of their use are the authors of this interesting treatise, who have of recent years devoted themselves exclusively to the work. The book is a systematic and comprehensive discussion of the subject, taking up each alkaloid in turn and discussing its pharmacy, physiology, toxicology and therapeutics in much detail. An interesting feature of it is the insertion, at frequent intervals, of blank pages for practical notes by the reader from which many useful points should ultimately accrue to the authors. It is an excellent work and we heartily commend its use.

**Polk's Medical Register and Directory of North America.* Eighth revised: edition. 8vo: pp. 3076. Detroit. Baltimore, Chicago. R. L. Polk & Co. 1904.

†*A Text Book of Alkaloidal Therapeutics.* By. W. F. WAUGH, M.D. and W. C. ABBOTT, M.D. with the collaboration of E. M. EPSTEIN, M.D. 8vo: pp. 405. Chicago. The Clinic Publishing Co., 1904.



The St. Louis Meeting.

ADDITIONAL DETAILS WITH REGARD TO THE ANNUAL CONVENTION.

THE arrangements for the International Congress of Military Surgeons, to be held in lieu of the Thirteenth Annual Meeting of the Association of Military Surgeons of the United States, at St. Louis, on October 10th to 15th next, are well under way with every prospect of a most satisfactory Convention.

Numerous foreign governments have manifested great interest in the Congress, the following officers to represent some of the services having already been named by their several countries:

British Army—Lieutenant Colonel H. W. Murray, R. A. M. C.

British Navy—Inspector General R. W. Coppinger, R. N.

Canadian Army—Director General Eugene Fiset, A. M. S.

Guatemalan Army—Don Joaquin Yela.

Honduras Army—Don Salvador Cordova.

Indian Army—Colonel R. Hamilton. I. M. S.

Italian Army—Colonel Pietro Imbriaco.

Italian Navy—Lieutenant Colonel Luigi Abbamondi.

Mexican Army.—Lieutenant Colonel Augustin Aguirre.

Nicaraguan Army.—Don Leopoldo Ramirez Mairena.

Peruvian Army.—Don David Matto.

Spanish Army.—Don Eduardo Cisneros Sevillano.

Spanish Navy.—Don Juan Redondo y Godino.

In addition to the events named upon the preliminary program published in the last number of the JOURNAL, the following matters of interest will be taken up. Many of the reports will be of very great interest and of high advantage in the consideration of the progress of medico-military affairs.

1. Report of the Executive Council.
2. Report of the Secretary and Editor.
3. Report of the Treasurer.
4. Report of the Literary Committee.
5. Report of the Public Service Medical School Committee.
6. Report of the Committee on Legislation.
7. Report of the Committee on Insignia.
8. Report of the Committee of Arrangements.
9. Report of the Enno Sander Prize Medal Board of Award.
10. Report of the Necrology Committee.

Twenty minute abstract on the Relation of the Medical Department to the Health of Armies. By the Enno Sander Prize Essayist.

The successful competitor has a plan for organizing the Army Medical Department on a new basis, recognizing the fact that the medical officers, like other men, differ much in capacity for performing properly the manifold duties which devolve upon them, and that in their assignments their special abilities and experience should be taken into consideration; few are or can become skilled operating surgeons, and few are or can become skilled practical sanitarians,—hence the importance of putting these specially skilled men where they are most needed.

The Russian Army Medical Service. By Lieutenant Colonel Frank Howard, A. M. S.

A discussion of the Russian Army medical service supplementary to the account given in the author's Handbook of the Medical Organisations of Foreign Armies and published in the October number of the Journal of the Military Surgeons.

Observations on the Organization and Work of the Medical Department of the Japanese Army. By *Acting Assistant Surgeon Anita Newcomb McGee, U.S.A.

The asterisk () in connection with an officer's name indicates that he is not now in active service as such.

As Supervisor of Nurses of the Japanese Red Cross Society, the author has had unusual facilities for observing the medico-military work of the Japanese, both in Japan and on the continent and in this paper she details the results of her observations.

Observations on the Russo-Japanese War. By *Major Louis Livingston Seaman, U. S. V. E.

A report of the author's personal observations in the orient during the hostilities between Japan and Russia.

The Sanitary Situation in Panama. By Colonel William Crawford Gorgas, U.S.A.

The chief medical officer of the Panama Canal Commission presents an account of his work, planned to reduce the sick-rate of the canal zone.

A Chest Wound by Krag Rifle at Fifty Yards. By Major George H. Halberstadt, N. G., Pa.

A report of a chest injury inflicted by a small caliber projectile at short range, with especially interesting features.

The Apron Stretcher,—Description and Demonstration. By Surgeon G. A. Lung, U. S. N.

Demonstration of a new stretcher devised by Surgeon G. A. Lung U.S. Navy, known as the Apron Stretcher. For general use in transporting sick and wounded, but particularly for use on board ships, ambulance service, or in confined places where it is necessary to maintain the patient in a fixed and comfortable position while being transported.

Asiatic Cholera. By *Major John A. Metzger, U. S. V.

After a brief history of the disease, the clinical picture is presented followed by a discussion of the prophylaxis,—both state and personal,—closing with the treatment, and fusing the author's personal observations in connection with the disease while in the Philippines, with those of Alt, Rumpf, Dujardin-Beaumetz and Koch.

A Surgical Experience after a Venezuelan Battle. By Surgeon James Chambers Pryor, U.S.N.

Conditions found at Ciudad Bolivar, Venezuela after the battle in July, 1903. An improvised hospital. Wounds observed. Lack of a Medical Corps in the Venezuelan Army.

First Aid to the Wounded in Naval Battles. By Don Juan Redondo y Godino, Spanish Navy.

A Spanish view of aid in naval warfare by the surgeon of the "Isla de Cuba" in the battle of Manila Bay.

The Organization of the Department of Health for the Canal

Zone, Isthmus of Panama. By Medical Director John W. Ross, U.S.N.

This is an accurate and detailed description of the organized sanitary work upon the Isthmus of Panama, by the medical officer in charge.

Notes on a Case of Myeloid Sarcoma of the Head of the Tibia. By Assistant Surgeon W. C. Rucker, P. H. & M. H. S.

Case of recurrent sarcoma. History. Operations. Result. Pathological Report.

Note on the Le Tulle Autopsy Method. By Assistant Surgeon William C. Rucker, P.H. & M.H.S.

Brief review of Le Tulle's recent work, "Le Pratique des Autopsies:" points of difference and superiority of the new method.

A Case of Tropical Dysentery. By *Contract Surgeon Alfred Terry Short, U.S.A.

An account of the author's first case of amoebic dysentery, in the early days of the American occupation of the Philippines.

Tubercular Adenitis with Marked Involvement of the Pancreas. By Assistant Surgeon W. J. Zalesky, U. S. N.

Report of a case with full discussion of the clinical and pathological conditions.

Some Experiences in Emergency Surgery. By Captain Robert Eddy Bell, M. V. M.

(1.) Operation for Exophthalmus due to Fracture of the Nose. (2.) Operation for Meningitis following Pneumonia (3.) Gastrotomy for Foreign Body in the Oesophagus. (4.) Two Cases of Gangrenous Ruptured Appendix.

Treatment of Upward Dislocation of the Acromial End of the Clavicle in the Tropics. By Major Peter R. Egan, U. S. A.

Report of a case, treated at Cebu, P. I., with comments upon the treatment, with especial reference to tropical conditions.

A New Field Instrument. By Lieutenant (Junior Grade) Henry Emerson Wetherill, N. M., N. G. Pa.

This is a combination instrument designed to meet the wants of Hospital Corps men, comprising in itself scissors, forceps, knife and director.

The following papers of which abstracts have not yet been received will also be presented:

The Ambulatory Treatment of Fractures of the Lower Extremity. By Lieut. W. A. Kuflewski, I.N.G.

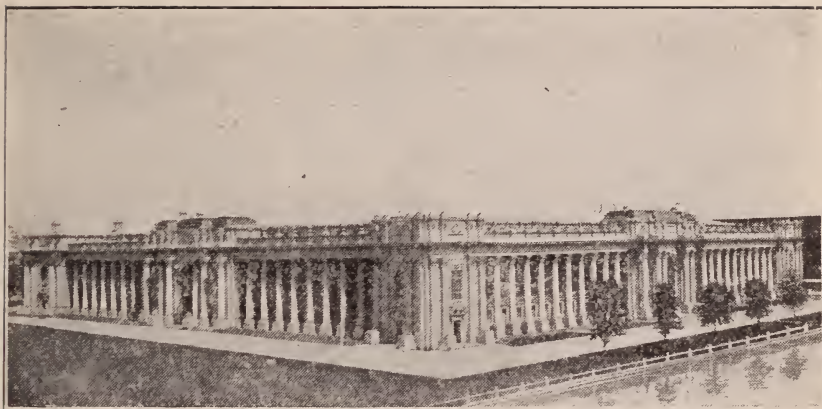
Military Hygiene, its Theoretical and Practical Study in the regular Army and Militia Forces. By Lieutenant Robert Smart, Assistant Surgeon, U.S.A.

Especial attention is again invited to the fact that all sessions of the meeting are to be held in the Hall of Congresses, just west of the Administration Building on the Exposition grounds, and that the hour for meeting of its Opening Session on Monday is 2 P. M., but that all other sessions will meet at 9 A. M. on the succeeding mornings of the week.

THE JOURNAL OF THE MILITARY SURGEONS AT THE WORLD'S FAIR.

ASIDE from its presence in the Army Hospital at the World's Fair in St. Louis the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS will be found on file in the Library of the Emergency Hospital on the Exposition grounds. All our readers are cordially invited to visit the Hospital and to consult the JOURNAL in its Library.





The Thirteenth Annual Meeting, St. Louis, Mo., October 10-15, 1904.

MINUTES OF THE MEETING.

THE Thirteenth Annual Meeting of the Association of Military Surgeons of the United States convened at the Louisiana Purchase Exposition, St. Louis, Mo., on Monday afternoon, October 10th, 1904, taking the form of an International Congress of Military Surgeons, and continued in session upon the mornings of the five ensuing days with the following officers, members and delegates in attendance :

OFFICERS.

Medical Director JOHN CROPPER WISE, United States Navy, *President*.
Surgeon General WALTER WYMAN, Public Health & Marine Hospital Service, *First Vice President*.

Major ALBERT HENRY BRIGGS, Surgeon in the National Guard of New York, *Second Vice President*.

*Major JAMES EVELYN PILCHER, Brigade Surgeon of United States Volunteers, Captain, Retired U.S.A., *Secretary & Editor*.

Major HERBERT ALONZO ARNOLD, Surgeon in the National Guard of Pennsylvania, *Treasurer*.

Lieutenant WILLIAM W. RENO, Assistant Surgeon in the United States Army, *Assistant Secretary*.

*The asterisk in connection with an officer's name indicates that he is not now in active service as such.

MEMBERS.

Major Charles Adams, Surgeon, I.N.G.

*Assistant Surgeon Adolf Alt, Prussian Army.

Lieutenant Colonel Leonard B. Almy, Retired, Conn., N.G.

*Major Azel Ames, Brigade Surgeon U.S.V.

*Acting Assistant Surgeon Thomas Z. Ball, U.S.A.

Surgeon Charles Edward Banks, P.H.&M.H.S.

Lieutenant Colonel Edwin Bentley, Retired, U.S.Army.

Major George C. Berkley, Surgeon Vt.N.G.

Surgeon Henry Gustav Beyer, U.S.Navy.

Colonel S. E. Bibby, Surgeon General of Idaho.

*Captain Nelson Miles Black, Assistant Surgeon Neb. V.I.

Assistant Surgeon John S. Boggess, P.H.&M.H.S.

Captain James Brew, Assistant Surgeon Tenn.N.G.

Major Elmer W. Brown, Surgeon, Washington N.G.

*Major William Sohler Bryant, Brigade Surgeon U.S.V.

Lieutenant Carroll D. Buck, Assistant Surgeon U.S.A.

*Acting Assistant Surgeon Oliver H. Buford, U.S.A.

Surgeon Paul M. Carrington, P.H.&M.H.S.

*Lieutenant Colonel Eustathius Chancellor, Retired, N.G.Mo.

Lieutenant Colonel Frederick R. Charlton, Chief Surgeon Ind.N.G.

Captain Wilbur S. Conkling, Assistant Surgeon Ia.N.G.

*Brigadier General George Cook, Surgeon General of New Hampshire.

Lieutenant E. G. Covington, Assistant Surgeon I.N.G.

Lieutenant Colonel Louis W. Crampton, Deputy Surgeon General, U.S.A

Captain Samuel M. Deal, Assistant Surgeon S.C.N.G.

Captain Wm. T. Dodge, Assistant Surgeon Mich.N.G.

Colonel John B. Edwards, Surgeon General of Wisconsin.

Passed Assistant Surgeon Rudolph H. von Ezdorf, P.H.&M.H.S.

Major David S. Fairchild, Jr., Surgeon Iowa N.G.

Captain Harry Eugene Ferrel, Assistant Surgeon N.G.Mo.

*Colonel Francis T. B. Fest, Surgeon General of Honduras.

Lieutenant A. P. Fitzsimmons, Assistant Surgeon Neb.N.G.

Surgeon James M. Gassaway, P.H.&M.H.S.

Colonel Charles C. Godfrey, Surgeon General of Connecticut.

*Captain David King Gotwald, Assistant Surgeon O.V.I.

Major Lovett T. Guerin, Surgeon O.N.G.

Major George H. Halberstadt, Surgeon, N.G.Pa.

Lieutenant Colonel George Halley, Medical Director N.G.Mo.

Acting Assistant Surgeon Henry J. Hamilton, P.H.&M.H.S.

Colonel Peter Oliver Hanford, Surgeon General of Colorado.

*Brigadier General Hugh A. Hart, Surgeon General of Ohio.

*The asterisk in connection with an officer's name indicates that he is not now in active service as such.

Major Eugene Hawkins, Surgeon Ind. N.G.
Major Frank W. Hendley, Surgeon Ohio N.G.
Major Julius F. Henkel, Surgeon Mich.N.G.
Captain George N. Hidershede, Assistant Surgeon Wis.N.G.
Lieutenant Henry Z. Hissem, Assistant Surgeon K.N.G.
Lieutenant Colonel John Van R. Hoff, Deputy Surgeon General, U.S.A
Major Olin E. Holloway, Surgeon Ind.N.G.
*Major C. H. Hughes, Surgeon Mo.V.I.
Captain James B. Hungate, Assistant Surgeon Neb.N.G.
Major Richard W. Johnson, Surgeon U.S.A.
Major Homer I. Jones, Surgeon, Ind.N.G.
Major Jefferson Randolph Kean, Surgeon U.S.A.
Colonel James M. Keller, Surgeon General of Arkansas.
Passed Assistant Surgeon John F. Kennedy, U.S.N.
Major William P. Love, Surgeon O.N.G.
*Major Charles V. F. Ludwig, Surgeon Mo. V.I.
Brigadier General Frank J. Lutz, Surgeon General of Missouri.
Lieutenant P. McDermid, Assistant Surgeon Iowa N.G.
Major James W. McMurray, Surgeon O.N.G.
Major Donald Macrae, Jr., Surgeon Ia. N.G.
Lieutenant William H. Maley, Surgeon I.N.G.
Brigadier General Otis H. Marion, Surgeon General M.V.M.
Acting Assistant Surgeon W. H. Marsh, P.H. & M.H.S.
*Major John Adams Metzger, Surgeon U.S.V.
Major Samuel Cargill Milligan, Surgeon N.G. Pa.
*Major James Cabell Minor, Brigade Surgeon U.S.V.
*Acting Assistant Surgeon Charles B. Mittelstaedt, U.S.A.
Captain Ralph W. Montelius, Surgeon N.G. Pa.
Major C. J. Montgomery, Surgeon Ga. S.T.
Major Daniel Morton, Acting Chief Surgeon N.G. Mo.
Major Henry G. Mudd, Surgeon N.G. Mo.
Captain Charles T. Newkirk, Mich. N.G.
Surgeon Charles F. Peckham, N.B., R.I.M.
Surgeon Cyrus T. Peckham, P.H.&M.H.S.
*Major G. L. Pritchett, Surgeon Neb. N.G.
Major Ogden Rafferty, Surgeon U.S.A.
Major Thomas U. Raymond, Surgeon U.S. Army.
*Acting Assistant Surgeon J. W. Richards, U.S.A.
Major Buell S. Rogers, Surgeon I.N.G.
Captain Jesse Rowe, Assistant Surgeon I.N.G.
*Major Enno Sander, E.M.M.
*Major Louis L. Seaman, Surgeon U.S.V.E.

*The asterisk in connection with an officer's name indicates that he is not now in active service as such.

Colonel Nicholas Senn, Surgeon General of Illinois.
Lieutenant William N. Senn, Surgeon I.N.G.
Captain French W. Smith, Assistant Surgeon W. Va. N.G.
Captain Samuel C. Stanton, Assistant Surgeon I.N.G.
Lieutenant Colonel Andrew S. Stayer, Division Surgeon N.G. Pa.
*Major Floyd Stewart, Surgeon U.S.V.
Surgeon Charles Francis Stokes, U.S.Navy.
Brigadier General Alexander J. Stone, Surgeon General of Minnesota.
*Colonel John E. Summers, Jr., Surgeon General of Nebraska.
*Brigadier General Marshall Orlando Terry, Surgeon General of N.Y.
Major Herman Tuholske, Surgeon N.G. Mo.
Major B. F. Van Meter, Surgeon Ky. S.G.
Assistant Surgeon General George Tully Vaughan, P.H.&M.H.S.
Captain James Peter Warbasse, Assistant Surgeon N.G.N.Y.
*Assistant Surgeon William Francis Waugh, U.S. Navy.
Colonel Joseph K. Weaver, Surgeon General of Pennsylvania.
Surgeon Charles P. Wertenbaker, P.H. & M.H.S.
Major Allen R. Wesley, Surgeon I.N.G.
Major Joseph B. Whiting, Jr., Surgeon Wis. N.G.
Major Charles C. Wiley, Surgeon N.G. Pa.
Lieutenant E. L. Woods, Assistant Surgeon N.M.N.G.
Major S. M. Wylie, Surgeon Ia. V.I.
Colonel Robert S. Young, Surgeon General of North Carolina.

FOREIGN DELEGATES.

Lieutenant Colonel Luigi Abbamondi, Italian Navy.
Lieutenant Colonel Augustin Aguirre, Mexican Army.
Inspector General R. W. Coppinger, British Navy.
Don Salvador Cordova, Honduras.
Colonel Eugene Fiset, A.M.S. Canada.
Colonel Pietro Imbriaco, Italian Army.
Colonel H. Mareschal, French Army.
Surgeon David Matto, Peruvian Army.
Lieutenant Colonel Henry W. Murray, R.A.M.C.
Captain Juan Redondo, Surgeon, Spanish Navy.
Colonel G. Sterling Ryerson, A.M.S. Canada.
Dr. Joaquin Yela, Guatemala.

*The asterisk in connection with an officer's name indicates that he is not now in active service as such.

FIRST SESSION, MONDAY AFTERNOON, OCTOBER 10, 1904.

THE opening session of the meeting convened in the Hall of Congresses of the Louisiana Purchase Exposition at 2 o'clock P. M. The Hall was handsomely decorated with bunting, and the flags of the United States and of other nations graced the walls. Upon the stage sat the President and the Secretary of the Association and Colonel Pietro Imbriaco of the Italian Army, the Dean of the foreign delegates. In the audience, in addition to the members of the Association and delegates from other countries, were numerous representatives of the Commissioners from the several nations represented at the Fair, many ladies and a large military and medical contingent from St.



The Hall of Congresses.

Louis. The celebrated 24th United States Colored Infantry Band opened the exercises with an overture, furnished selections between each of the addresses and closed the session with a march.

At the request of the President, Major James Evelyn Pilcher presided over the meeting.

An invocation was offered by Rabbi Leon Harrison, D.D., of St. Louis.

The Chairman then laid before the meeting a communication from the President of the United States expressing his regret at his inability to be present at the opening of the Congress, the letter being received by the audience standing and the band playing the national air. Announcement was made also of the

receipt of similar letters from the Secretaries of War and of the Navy and other prominent officials.

Colonel Pietro Imbriaco of the Italian Army was introduced and read in French a brief address on behalf of his own Corps and of the foreign delegates present.

Medical Director John Cropper Wise, U.S.N., was then presented to the audience and eloquently delivered the President's Annual Address upon "The Ideal Military Surgeon."

Colonel G. Sterling Ryerson of the Canadian forces was introduced and responded interestingly in behalf of the English speaking delegates.

Honorable David R. Francis, President of the Louisiana Purchase Exposition, was then introduced to the meeting and delivered a happy address cordially welcoming the members of the Congress to the Exposition, describing its organization and principal features and detailing its advantages.

SECOND SESSION, TUESDAY MORNING, OCTOBER 11, 1904.

THE meeting was called to order by the President at 9.30 o'clock A. M.

The Secretary read the report of the Executive Council which recited the work of that body during the past year, announced that the Association had been increased by the addition of 284 new members, submitted the names of a number of candidates for Corresponding Membership and Honorary Membership, presented,—to be laid over for one year,—a proposed amendment to the Constitution providing for the reduction of the annual dues to \$2.00, recommended the continuance of the insignia committee, recited the organization of the International Congress of Military Surgeons and recommended that measures be taken to secure, at the earliest possible date, an endowment of \$100,000.00 as authorized by the Act of Incorporation of the Association.

Upon motion of Captain James P. Warbasse the report of the Council and its recommendations were adopted.

The Secretary submitted his report showing that the work of the Secretariat has been progressive and constant during the year, the work of the office taking up the entire time of four

persons and a portion of the time of a number of others. He announced the publication of a new and revised edition of Volume III of the Annual Transactions which had been out of print for a number of years and which could now be obtained upon application to his office. The finances of the office involved the receipt, during the year, of \$6388.74 and the expenditure of \$6090.65, leaving a balance of \$298.09 to his credit.

Upon motion of Captain James P. Warbasse the report was adopted.

THE PRESIDENT: I can witness to the devotion and energy of the work of our Secretary during the year if any testimony be necessary in addition to this report.

The Treasurer, Major Herbert A. Arnold, then presented his report showing receipts during the year of \$9156.66, expenditures of \$3420.53, with a balance on hand of \$5736.17. The report was accompanied by an auditing certificate by a certified accountant. In connection with the finances the Treasurer also remarked:

The only statement I have to make accompanying this report is that we now have a fully paid membership vastly in excess of the entire membership of some years ago. More than 700 members,—just how many more I am unable to say at this moment,—are fully paid, and the accounts have never been in better condition as far as arrearages are concerned. The responses to statements sent out are more prompt than they were a few years ago. I wish, however, that all who attend the meetings, as far as lies in their power, at least, would see me at my desk and have a straightening up of accounts at this time. I notice that some members attend the meetings and go away again with unsettled accounts, and this should not be so.

THE PRESIDENT: This is a satisfactory and certainly a creditable account, and in conformity with custom it will be referred to the Auditing Committee.

On motion of Colonel Hoff the accounts of the Secretary and Treasurer were directed through the usual course.

The president appointed the following committees:

(1). To audit the accounts of the Secretary and Editor: Brigadier General Otis H. Marion, Assistant Surgeon General George Tully Vaughan, and Major Jefferson R. Kean.

(2). To audit the accounts of the Treasurer: Lieut. Col. Leonard B. Almy, Major Albert H. Briggs and Surgeon Henry G. Beyer.

The Secretary submitted the report of Col. J. K. Weaver, Chairman of the Literary Committee.

The report of the Public Service Medical School Committee was read by Lieut. Col. John Van R. Hoff.

On motion of Major Briggs the report was received.

THE PRESIDENT: The next order of business is the report of the Board of Award on the Enno Sander Prize Medal.

SURGEON HENRY G. BEYER, U.S.N.: The theme given out this year was "The Relation of the Medical Department to the Health of Armies." While I regret very much that our chairman, Lieut. Col. John S. Billings of the Army, is not present to give the report himself, I feel very much gratified to be in position to report the pleasant fact that we have gotten together quite a lot of very creditable work. The prize essays, in all about six in number, while each one has peculiar merit of its own, all seem to be centered upon about the same point of gravity, and I think, perhaps, it would be well to read a few extracts from the paper which received the first mention, which will be characteristic of the whole soul of that paper. The papers naturally are very long and the reading of them might become tiresome. You can read them better and with more profit after they are printed in the JOURNAL. The board was unanimous in its decision, although working in different places. They reported to the Secretary without communicating with each other and agreed upon the same two papers as entitled to the first and second award. The first prize was given to the paper under the nom de plume "In Hoc Signo Vincas," and the second prize to that marked "Onward."

The Secretary, Major Pilcher, then opened the envelopes and announced that the first prize was awarded to Lieut. Col. William Hill-Climo, Army Medical Staff (retired), London, Eng., and the second to Lieut. Col. H. Hathway, R.A.M.C., Jhansi, India.

Surgeon Beyer then read extracts from the paper of the successful contestant, and the essays were referred to the publication committee.

The scientific program was then taken up by the reading of a paper on "Further Researches into the Causes which tend to bring about Serious Accidents to Divers," by Tenente Colonello Medico Luigi Abbamondi, Royal Italian Navy, the paper being briefly discussed.

"The Medical Reserve Corps of the United States Army," was the subject of a paper read by Major Azel Ames, U.S.V., and was discussed in extenso.

The following papers, their authors not being present, were read by title and referred to the committee on publication:

"The Principles of the New Austrian Sanitary Regulations for War." By Stabsarzt Dr. Johann Steiner, Austro-Hungarian Army.

"The Sanitary Situation in Panama." By Colonel William Crawford Gorgas, U.S.A.

"The Russian Army Medical Service." By Lieutenant Colonel Frank Howard, A.M.S.

COLONEL HOFF: I had hoped that Col. Howard's paper would be read here and discussed, as it was my intention to make that the vehicle to bring before the Association certain matters in connection with the reorganization or the proposed field reorganization in connection with the Medical Department of the United States Army, which I think is a matter of the greatest importance and which I think should be discussed before this Association, and I ask, if opportunity presents, that I may be permitted to bring this matter before the Association.

Upon the request of President Wise, Col. G. Sterling Ryerson of Canada, assumed the chair.

MEDICAL DIRECTOR JOHN C. WISE: We have here a representative of Spain and he is to present a paper on emergency service in naval warfare. Before I was aware that he was to present a paper, I myself had written a critique based on observations of a number of naval battles, and as the morning's program is exhausted I shall avail myself of the privilege of present-

ing the paper at this time, although the paper is taken out of the regular order of the program.

The subject of the paper read was, "First Aid in Naval Warfare." By Medical Director John C. Wise, U.S.N. The paper was briefly discussed.

At this point Col. Ryerson^{*} relinquished the chair to President Wise.

THE PRESIDENT: Major Seaman has returned from abroad and will present a paper tomorrow morning based upon his observation and experience in the medical department of the Japanese army. The subject promises to be most interesting, one which will interest the ladies as well as the gentlemen, and if any of the members have their wives accompanying them or friends we should be glad to have them bring them tomorrow. The program is large and as we have only one session I trust you will endeavor to be present at the time set for opening the meeting.

On motion of Colonel Weaver the meeting adjourned.

THIRD SESSION. TUESDAY, OCTOBER 12, 1904.

THE meeting was called to order at 9.30, A.M.

The first paper announced for reading was that of Colonello Medico Pietro Imbriaco, Royal Italian Army, "On the Organization and Conduct of the Sanitary Service of the First Line in Modern War." The paper was advanced several numbers on the program.

THE PRESIDENT: I shall depart from the regular order of the program for a moment to introduce to you Hon. Wm. C. Maybury, Mayor of Detroit, who desires to extend an invitation to the Association to hold its next meeting in that city. (Applause.)

HON. WILLIAM C. MAYBURY: Mr. Chairman and Gentlemen: I desire to tender you a most cordial invitation to meet with us in Detroit the coming year. I might say in advance that there is no special surgery we shall wish you to perform except to cut out all care and have a good time. You may know that Detroit was once the center of military operations, but today there is only left a part of the old garrison built by Gen. Meigs who

was one of the most famous engineers of his time. Detroit is always imbued with a military spirit, and you will find that military spirit strong; and the feeling is not only for our army, but also for the redcoats across the way in the service of His Britannic Majesty. You will also see a vast commerce, greater perhaps (and I say it without being invidious), than any under our flag. It is an inspiring sight, and you will be repaid to see the stars and stripes floating above a commerce greater in value than that which enters London and Liverpool combined. You will know, gentlemen, before a word of welcome is given to you that Detroit is a hospitable city. It is of French origin as this city is. The streets are broad and you need not fear of being jostled by anybody on the sidewalks. We are very lonesome in Detroit unless we have our friends with us. [Applause.] I tender you a cordial welcome to come to our city. I am also authorized by the governor, who is on the grounds, to tender you an invitation, and if you accept the hospitality of Detroit you cannot help but be happy. [Applause.]

THE SECRETARY: Mayor Maybury has been so kind that we can do no less than to put our mark on him [fastening a badge upon his coat].

MAYOR MAYBURY: It is certainly a delightful piece of surgery. [Laughter.]

The regular program was then resumed by the reading of a paper entitled, "Observations on the Russo-Japanese War," by Major Louis Livingston Seaman, U.S.V.E.

MAJOR SEAMAN: If agreeable to the Association and if permitted by the chair, I beg leave to introduce a set of resolutions relative to the improvement of the service of the sick and wounded in the United States forces, to the increase in importance of instruction in military and naval hygiene and to the restoration of the sale of malt beverages in post exchanges.

COLONEL HOFF: I think since Major Seaman has brought in this issue it might be well to call attention to General Order No. 115, which is known as the "educational" order, and which takes in very much of what he refers to in connection with instruction in military hygiene and sanitation. General Order No. 115

prescribes that in the examination for commission of all second lieutenants military hygiene is a requisite. General Order No. 115 prescribes that in all garrison schools, which are schools organized for the instruction of officers in the army, covering a course of three years, military hygiene shall be taught. General Order No. 115 also prescribes that in the Infantry and Cavalry School at Fort Leavenworth, with which I have the honor to be connected, military hygiene shall be taught, so it will be seen that now military hygiene is requisite as a necessary part of military education and is required in the examinations for commissions. I want to express the wish that it might have been still further extended. I should have been glad if it had been recognized in what is known as the higher schools, the Staff College and War College. It was proposed at the General Staff College, as it was then called, that military hygiene should be taught, not only in the infantry and cavalry department, but also in the staff department, but I believe the authorities at Washington decided that the teaching in the infantry and cavalry schools was deemed sufficient, and the matter was left at that. I am heartily in favor of the resolution so far as it applies to reorganization and sanitary education, but I thought the Association should know exactly the status of military sanitation in the army today.

THE PRESIDENT: Gentlemen, I am of the opinion that this resolution should receive a great deal of consideration. I do not think we ought to adopt such a resolution without mature and deliberate thought. The resolution provides for the request that hygiene be added to the curriculum at West Point and Annapolis. So far as the Naval Academy at Annapolis is concerned, there is a thorough establishment of hygienic instruction. I am in full accord with the sentiment of the paper, but I think it should be referred to the Council for the purpose of giving it more mature consideration than we can give it here. The resolution proposes that our Army medical department be put in the status of the German army. I am not informed as to exactly what that status is, but I do know that I should not wish to change to the status of the German army officer. I would suggest that this resolution be referred to the Council.

MAJOR AMES: I will make a motion that it go to the Council for the reasons already given. I would have been glad at the close of my paper yesterday to have offered a resolution touching these matters, but I felt that they called for more mature deliberation than we were able to accord them here. I refrained from offering such a resolution because I believed it should be the subject of mature thought with all points carefully considered. I will therefore move that the resolution be referred to the Council of the Association.

SURGEON BEYER: I agree with the gentleman that the most thorough discussion and deliberation should be accorded to resolutions of this kind before they are accepted. While I agree in the main with the points made by Major Seaman, still I think they are immature; they should be discussed and be the subject of mature thought by every member present before they are adopted. So far as teaching hygiene and physiology is concerned, at Annapolis, it is true, I was perhaps the first to start that chair, with the intention of making it a sort of undergraduate course in hygiene, based on such experimental knowledge of physiology as we could teach the cadets. The point is right here,—while attempts have been made and have been continued ever since I left the Academy in 1896 to carry out this course, there is no law requiring this instruction. It is optional and it is apt to change with every new change of superintendent. It is not uniform, it is not continuous, it is not fixed. The subjects taught are more or less optional with the professor; he is at liberty to teach what he likes. The subjects are not sufficiently fixed; there is a looseness, a laxness about the chair which makes me place very little faith in it now. Some legislation is necessary so that when a new superintendent comes he will not be able to make these changes. At present we have no means of stopping him. He might annihilate the whole chair, and it has been partly done. I do not want the members to get the idea that it is a fixed chair, for it is not, and some legislation is necessary to preserve its life.

GENERAL STONE: I wish to amend the motion made by Major Ames that the resolutions be referred to the Council for

recommendations, with instructions to report to the Association at its Friday morning session.

MAJOR AMES: I will accept that amendment.

THE PRESIDENT: I think the time for pressing this resolution is a little inopportune. It is a subject requiring a great deal of study. I think it should go to the Council but it should receive the most mature deliberation at its hands. I think Dr. Beyer is mistaken in his statement that the instruction in hygiene at the Academy is not a matter of statute law. It is a matter of law. Let that be as it may, my own idea is that this is something that requires very serious and lengthy consideration and deliberation. I would suggest that the original motion only prevail.

MAJOR AMES: I accepted that amendment and I did it because I can conceive no time better than the present for the consideration of subjects of so grave importance. No man knows how soon the time of war may come upon the nation. The conditions described by Major Seaman call for a remedy, and that remedy must come largely by the consensus of opinion of such a body as this, and therefore I do not believe we can address ourselves more advantageously to the business than on a special occasion like this. I feel that our duty here and now is to consider matters that may come before us, and especially matters of this character that have such grave importance. That is why I am ready to accept the amendment. I do not think it would be well to carry this matter over for another year, for the personnel of the attendance changes from year to year, and I think there will be ample time for the Council to consider the resolutions if carried over until Friday.

SURGEON BEYER: So far as the teaching of hygiene at the Naval Academy being a matter of statute law is concerned, it is simply temperance physiology, that is legally required.

GENERAL STONE: I wish to call attention to the fact that the resolutions cover more than one point, whereas the discussion is only upon one feature contained in the resolutions, and the Council can select such points as they may wish to report upon. The purpose of the amendment I offered, which is now a part of the original motion, was that the Council be requested to report

these resolutions with recommendations at the Friday morning meeting. It is not necessary for these resolutions to lie over an entire year, but there is ample time to consider them in the following four days.

THE PRESIDENT: I do not think the consideration of the questions can be separated. I deprecate the way in which these resolutions are pushed. It is with great difficulty that we get the Council together; we have very few members of the Council present, and I predict it will not be as ably considered as if it were left to the Council for maturer consideration. As I understand the motion it is to the effect that the resolutions offered by Major Seaman be referred to the Council with instructions to report to the Association on Friday morning.

GENERAL STONE: With the addition that they report their recommendations to the Association on such propositions contained in the resolutions as they may deem fit.

The motion as amended having been duly seconded was put to a vote and prevailed unanimously.

COLONEL HOFF: I have another resolution of a similar character which I desire to offer, with the motion that it take the same course as the preceeding resolution.

THE PRESIDENT: I think that would be legitimate, but in offering these resolutions we have drifted from the consideration of our scientific program.

COLONEL HOFF: The resolution I wish to present is a very important one.

THE PRESIDENT: If there is no objection the resolution will be received.

Colonel Hoff then submitted his resolutions with a motion that they be referred to the Council to report at the Friday morning session:

The motion of Colonel Hoff being put to a vote the resolution was referred to the Council with instructions to report at the Friday morning session.

The authors of the following papers not being present the papers were read by title and referred to the publication committee:

"The Organization of the Department of Health for the Canal Zone, Isthmus of Panama." By Medical Director John W. Ross, U.S.N.

"The Use of Trained Dogs in Searching for and Carrying Aid to the Wounded on the Battlefield." By Lieutenant Charles Norton Barney, U.S.A.

"The Naval Hospital Ship 'Relief.'" By Surgeon William C. Braisted, U.S.N.

"The Medical Officer in Campaign." By Major P. J. H. Farrel, I.N.G.

"The Canteen in the Military Service." By Brigadier General Jefferson Davis Griffith, N.G. Missouri.

"The Medical Corps of the United States Navy,—some Details Respecting its Past and Present." By Passed Assistant Surgeon James Nevins Hyde, U.S.N.

Brigadier General Otis H. Marion then read a paper upon the subject of "The Sanitary Sergeant."

This was followed by a paper entitled, "The United States Naval Medical School," by Medical Director Robert Augustine Marmion, U.S.N., the paper being read, in the author's absence, by Surgeon Charles F. Stokes, U.S.N.

The following papers by French authors were read by title and referred to the committee on publication:

"Radiography in Armies in the Field." By Colonel H. Mareschal, French Army.

"The Employment of the Automobile in Sanitary Service at the Front." By Colonel H. Mareschal, French Army.

"The General Principles of the Installation of Hospital Service in Contagious Diseases." By Major J. Simonin, French Army.

A paper was presented by Surgeon Charles Francis Stokes, U.S.N., on the subject of "Some Features of the Immediate Treatment and Transport of the Wounded in Naval Warfare." A demonstration was given with appliances and the paper elicited prolonged discussion.

"The Surgeon of the National Guard," was the title of a paper presented by Major Ralph W. Montelius, N.G. Pa.

"The Apron Stretcher,—Description and Demonstration," was submitted by Surgeon G. A. Lung, U.S.N., through Passed Assistant Surgeon John F. Kennedy.

THE SECRETARY: I have in my hand the report of the Auditing Committee on the Treasurer's Report, and they pronounce it correct and properly vouched.

On motion of Colonel Hoff the meeting adjourned.

FOURTH SESSION. OCTOBER 13, 1904.

THE meeting was called to order by President Wise, who asked for the report of the Council.

The Secretary, on behalf of the Executive Council, reported favorably upon the following modification of the resolutions which had been submitted the day before:

Resolved, That the Association of Military Surgeons of the United States now assembled, respectfully petitions Congress at its next session to reorganize the Medical Departments of the United States Army and Navy on a broad basis similar to that of the countries most advanced in military sanitation, giving to their officers equivalent rank, dignity and power, and to their personnel ample numbers for the proper care of the ill and injured in military and naval service.

Resolved, That this Association recommends that the sale of beer be permitted at Army post exchanges subject to such regulations as shall be determined by the General Staff and the Secretary of War.

Resolved, That while appreciating the fact that military sanitation has finally been introduced into the general scheme of military instruction and has been made a requirement in the examination of Second Lieutenants for promotion, nevertheless this Association believes that an adequate knowledge of "the care of troops" is of such vital importance to our Army that it should be given adequate recognition in all our Army and Navy schools and especially in the Staff College and War Colleges, and that the present courses at West Point and Annapolis should count in the requirements for graduation; it therefore respectfully petitions the President to make this resolution effective.

Whereas, The proposed Field Service Regulations, U.S. Army provide for Field Hospital accommodations of but 216 beds, with a personnel of but 8 Medical Officers, 16 non-commissioned officers and 82 privates for a *Division*, numbering approximately twenty thousand men.

Whereas: The experience of the best organized armies of the world shows that this allowance is much below the actual requirements,

Germany having	1200	beds	with	54	officers	and	282	men	per	Div'n
France	400	"	"	44	"		560	"	"	"
Great Britain	300	"	"	15	"		201	"	"	"
Russia	840	"	"	36	"		428	"	"	"
Japan	1200	"	"	48	"		648	"	"	"

and

Whereas, The said proposed Field Service Regulations U.S. Army provides for a *Divisional Ambulance Establishment*, the personnel of which numbers but 6 officers, 16 non-commissioned officers and 122 men, while that of

Germany numbers	14	officers,	16	non-com'd	officers	and	230	men
France has	14	"	25	"	"	"	192	"
Great Britain	8	"	32	"	"	"	170	"
Japan	13	"	61	"	"	"	342	"
Russia	6	"						and 285 men.

Therefore :

Resolved, 1st. That this Association of Military Surgeons of the United States respectfully represent to the President of the United States through the Secretary of War, member of our Advisory Board, the facts as above set forth.

Resolved, 2d. That the President be respectfully petitioned to direct that the military authorities provide a field medical organization for our army at least equal in all respects to the best that exists in any army, and which will meet the approval of military sanitarians generally, to the end that our sick and wounded in future war may receive adequate care and attention.

Resolved, 3d. That immediate action be taken to bring this matter before the President, so that a proper medical organization can be prescribed in the aforesaid Field Regulations, which are

now about to be issued, and which it is the hope of this Association he will not permit to be published until said proper medical organization is provided for.

THE PRESIDENT: You understand that this is a report on the resolutions referred to the Council yesterday.

On motion of Colonel Weaver the report of the Council was unanimously adopted.

On motion of Acting Assistant Surgeon W. H. Marsh, P.H. & M.H.S., the President was instructed to limit the reading of papers to twenty minutes each during the balance of the meeting.

The scientific program was then taken up with the reading of a paper entitled, "Medication on the Firing Line," by former Assistant Surgeon W. F. Waugh, U.S.N., which was discussed at some length.

The subject of "First Aid to the Wounded in Naval Battles," a paper advanced from the last day's program, was presented by Don Juan Redondo y Godino, Spanish Navy, and elicited extended discussion.

Captain S. C. Stanton submitted the report of the Committee on Necrology.

In order to save time the authors of the following papers requested that they be read by title and submitted to the committee on publication:

"An Hour with Dr. Thomas Trotter, Physician to the Fleet." By Medical Director John C. Wise, U.S.N.

"John Markham Marshall Ambler, U.S.N." By Medical Director John C. Wise, U.S.N.

"Army Medical Officers who have Become Secretaries of War." By Major James Evelyn Pilcher, U.S.V.

A paper was read by Captain James P. Warbasse, N.G.N.Y., entitled "Some Observations on the Treatment of Fracture," and briefly discussed.

THE PRESIDENT: We shall depart from the program for a few moments, and in accordance with custom, present to the foreign delegates in attendance the badge of the Association. If these foreign delegates are with us this morning I will ask them

to come forward and the Secretary will present them with the badges.

Those responding were Colonel Eugene Fiset, Director General Canadian Army Medical Staff; Inspector General R. W. Copping, British Navy; Colonel Henry Hamilton, British Indian Medical Service; Don Juan Redondo, Surgeon Spanish Navy; Colonel H. Mareschal, French Army; Colonel H. W. Murray, Royal Army Medical Corps; Colonel Salvador Cordova, Surgeon General, Honduras; Don Joaquin Yela, Guatemala; Don David Matto, Peru; Colonel Pietro Imbriaco, Royal Italian Army; Lieutenant Colonel Luigi Abbamondi, Royal Italian Navy.

THE SECRETARY, MAJOR JAMES EVELYN PILCHER,—One of the most important functions of the Association of Military Surgeons of the United States from the beginning has been the bringing of the military medical service of the United States into contact with the similar services of our brother countries. We feel that there is much to be learned from our friends of other nations, and we hope that we may at some time have something which they may think worth while to learn from us. In course of our work it has been the custom, so far as possible, each year to invite other nations of the world to send to our meetings representatives of their medical services in order that we might gain by social contact and by getting new ideas of medico-military conduct, and also in the hope that we might contribute something of value to them. We have then always endeavored to make this relation prominent. In order better to accomplish this, some years ago a class of Corresponding Members was established in our Association, and it is now our custom to elect foreign delegates to corresponding membership in the Association; this makes them members for life, recipients of our publications and continuously identified with our work.

I have the honor to hand you the diplomas of corresponding membership in the Association which, I trust, you will find of some interest and possibly of some value to you in your future work.

Colonel Fiset, as Director General of the Army Medical Department of our neighboring and sister country of Canada I have

the very great pleasure of handing you the decoration of our Association. [Applause.]

General Coppinger, you are the first representative of the Royal Navy we have ever had among us, and I trust in receiving this decoration you will accept it as a token of the high appreciation and regard in which we hold your service. [Applause.]

Colonel Hamilton, we have for a long time been in sympathy with the Indian Medical service; but recently the United States has found it necessary also to go into the tropical regions, for which reason we take especial pleasure in conferring this decoration upon you. [Applause.]

Captain Redondo, it is only a very few years since Spain and the United States of America were bearing arms upon opposite sides. You were connected with the medical department in active service in an action in which we were also engaged. We honor your bravery, we honor the bravery of your countrymen, and we appreciate you all the more highly because of the relations which have existed between us. We trust in conferring this decoration upon you that it may be a lasting memento of future peaceful relations, not only between your country and our's but also between you and the Association of Military Surgeons of the United States. [Prolonged applause.]

Colonel Mareschal, we have always had a strong fellow feeling for France. From France we received Larrey and Percy and to France we owe the beginnings of the field hospital; we hold her in high honor and respect, and we have very great pleasure in honoring ourselves by conferring upon one of her most distinguished officers the insignia of the Association of Military Surgeons of the United States. [Applause.]

Colonel Murray, it is hardly necessary to speak of the brotherhood and fraternity which exists between the Royal Army Medical Corps and the medical service of the American Army. We speak the same language, we think along the same lines and we might almost feel that we belong to the same body of workers. It is then with cordial pleasure that I have the honor of conferring upon you the decoration of the Military Surgeons of the United States, trusting you may wear it from time to time, and

that it may prove a reminder of the kind regard in which you and your service are held by us all. [Applause.]

Colonel Imbriaco and Colonel Abbamondi, Italy has been known since the days of the Roman Empire as one of the most important of warlike countries, and for that reason it affords us particular pleasure to confer upon you the insignia of this Association, which we trust your government will permit you to use, and which we hope you will feel inclined to wear as a token of the cordial relations that have been established between yourselves, your country and this Association. [Applause.]

Dr. Matto, we are of the same hemisphere, although Peru is not our immediate neighbor, yet there is much that is of interest between Peru and all of the Latin-American countries and ours, for which reason we are particularly glad to recognize you as a corresponding member of our Association, in evidence of which I hand you this badge. [Applause.]

Colonel Cordova, your country, Honduras, and ours are practically neighbors. Central America and the United States form part of the great North American continent, of which your own country is so important a feature, and we are delighted to feel that we have now established a fixed relation with you. We learn that you are about to establish a permanent military medical department in your country; we trust the effort will be successful and assure you that any assistance the military surgeons of this country may be able to extend to you will be extended most willingly and gladly. [Applause.]

Dr. Yela, we are most happy to recognize you and your country (Guatemala), and in conferring upon you this decoration of the Association of Military Surgeons of the United States we hope to establish closer relations and to count you as a perpetual friend. [Applause.]

INSPECTOR GENERAL R. W. COPPINGER: I should like to say on behalf of the Medical Department of the British Navy which I have the honor to represent, that I appreciate in the highest degree the honor conferred in being made a member of this distinguished Association. [Applause.]

LIEUT. COLONEL H. W. MURRAY: On behalf of the Royal Army Medical Corps, to which I belong I desire to express the deep sense of honor I feel in being presented with this diploma and the badge of the Association of Military Surgeons of the United States. It is a pleasure to be here. For the past few years I have been an associate member of the Association and it always gives me the greatest pleasure to meet my brothers,—and I may call you my brothers,—of the United States Army. I thank you. [Applause.]

COLONEL EUGÈNE FISET: As Director General and in behalf of the officers of my service I desire to thank you for the kindness you have done me in making me one of your corresponding members, and I must say that it is with the greatest pleasure I accept the distinction you have placed upon me in conferring this diploma and the decoration of your Association. [Applause.]

COLONEL H. HAMILTON: I also wish to offer my sincerest thanks in behalf of the English Indian service for the honor you have conferred upon me. [Applause.]

CAPTAIN JUAN REDONDO: I thank the Association of Military Surgeons of the United States for the honor conferred in placing upon me this decoration. [Applause.]

COLONEL H. MARESCHAL: In behalf of the Medical Department of the French Army I wish to express my deep sense of gratitude for the honor which has been bestowed upon me. [Applause.]

The consideration of the scientific program was then resumed, and in the absence of the author a paper entitled "A Sanitary Study of Culebra, U.S.W.I., as a Naval Base," by Medical Inspector Howard E. Ames, U.S.N., was read by title and referred to the committee on publication.

A paper on "Camp Sanitation" was presented by Major Herbert A. Arnold, N.G.Pa.

"Military Hygiene, its Theoretical and Practical Study in the Regular Army and Militia Forces" was the subject of a paper by Lieutenant Robert Smart, U.S.A., which was read by title and referred to the publication committee.

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Surgeon Henry G. Beyer, U.S. Navy, submitted a paper detailing "An Improved Method of Standardizing the recruit," which elicited prolonged discussion.

THE PRESIDENT: I take great pleasure in announcing that Major Seaman has offered a prize to the Association,—“The Seaman Prize,” of \$500 for an essay upon “The Prevention of Disease in the Army and the Best Method of Accomplishing that Result.” He has named as a Board of Award Brig. Gen. Geo. M. Sternberg, U.S.A.; Colonel J. W. Powell, U.S.A., Lieutenant Colonel John Van R. Hoff, U.S.A., Lieutenant Colonel N. S. Jarvis, N.G.N.Y. and Medical Director John C. Wise, U.S.N. I hope this will meet with your approval. [Applause.]

Brigadier General Otis H. Marion, on behalf of the Auditing Committee reported the accounts of the Secretary and Editor as correct and properly vouched.

The scientific program was again resumed by the reading of a paper with demonstrations upon the subject of “Practical Hearing Tests,” by Major William Sohler Bryant, U.S.V., which was briefly discussed.

The following papers were read by title and referred to the publication committee:

“Malingering,” by Lieutenant Samuel M. DeLoffre, U.S.A.

“Gymnastics and Athletics, with Especial Reference to Foot-ball.” By Colonel Valery Havard, U.S.A.

A paper entitled “The Pneumonia Problem,” was submitted by Surgeon Charles Edward Banks, P.H.&M.H.S., and called forth a short discussion.

THE PRESIDENT: I wish to say that we are fortunate to have with us this morning a gentleman of international reputation who has just returned from abroad, and I ask you to welcome Colonel Senn.

The business of the meeting was informally suspended for a few minutes while the members and friends of the Association tendered Colonel Senn an ovation.

COLONEL SENN: One of the objects of this meeting is to consider the feasibility of the organization of an international congress of military surgeons. For the purpose of bringing the

matter before the members of this Association in an intelligent form I wish to make a motion to the effect that the chair appoint a committee to be made up of a delegate from every foreign delegation, and one each from the Army, Navy, the Public Health and Marine Hospital Service, the United States Volunteers and the National Guard.

The motion was duly seconded and, being put to a vote, prevailed unanimously.

THE PRESIDENT: The chair will announce the names of the committee a little later.

The stated program was then resumed by the presentation of a paper on the, 'Treatment of Abdominal Injuries with Special Reference to Gunshot Wounds of the Liver,' by Colonel J. E. Summers, Jr., former Surgeon General of Nebraska, and was briefly discussed.

On motion of Major Briggs the meeting adjourned.

FIFTH DAY'S SESSION, FRIDAY, OCTOBER 14, 1904.

THE meeting was called to order by the President and business matters of the Association were considered preceding the scientific program.

The chair announced the following personnel of the committee to consider the organization of an International Congress of Military Surgeons:

Surgeon General Walter Wyman, P.H.&M.H.S.; Colonel Pietro Imbriaco, Italian Army; Captain Juan Redondo, Spanish Navy; Inspector General R. W. Coppinger, British Navy; Don Joaquin Yela, Guatemala; Don Salvador Cordova, Honduras; Don David Matto, Peru; Colonel H. Mareschal, French Army; Colonel G. Sterling Ryerson, Canadian Forces; Colonel Augustin Aguirre, Mexico; Colonel John Van R. Hoff, U.S.A.; Surgeon Henry G. Beyer, U.S.N.; Colonel Nicholas Senn, Ill. N.G. and Major James Evelyn Pilcher, U.S.V.

Upon motion of Colonel Hoff, the following resolution was adopted:

Resolved, that no badges or decorations shall be worn at

future meetings of the Association of Military Surgeons of the United States, except those authorized by law.

The motion being put to a vote, the resolution was unanimously adopted. The effect of this action is to put an end to the use at future meetings of local badges.

The scientific program being resumed, Surgeon Paul M. Carrington, P.H.&M.H.S., presented a paper on the subject of "Altitude and Expansion," which was exhaustively discussed.

"The Need and Advantages of a Permanent International Congress of Military Surgeons" were presented by Colonel Nicholas Senn, Surgeon General of Illinois.

The Secretary announced the following representation of membership on the Nominating Committee together with the members constituting the committee:

Army.....	33	votes, Col. Hoff
Navy.....	16	" Surgeon Beyer
P. H. & M. H. S.....	11	" A. S. G. Vaughan
Arkansas.....	1	" Col. Keller
Connecticut.....	2	" Col. Almy
Idaho.....	1	" Col. Bibby
Illinois.....	5	" Capt. Stanton
Indiana.....	1	" Col. Charlton
Massachusetts.....	4	" Gen. Marion
Michigan.....	1	" Maj. Henkel
Minnesota.....	1	" Gen. Stone
Missouri.....	2	" Col. Halley
Nebraska.....	1	" Capt. Hungate
New Hampshire.....	1	" Gen. Gook
New York.....	6	" Maj. Seaman
Ohio.....	4	" Maj. Guerin
Pennsylvania.....	4	" Col. Weaver
Rhode Island.....	1	" Lieut. Peckham
Vermont.....	1	" Maj. Berkley
Washington.....	1	" Maj. Brown
Wisconsin.....	1	" Gen. Edwards.

The Secretary read invitations from the following cities desiring the next annual meeting:

Colorado Springs, Colo.; Niagara Falls, N. Y.; Columbus, Ohio; Duluth, Minn.

An invitation was also tendered the Association by the Anheuser-Busch Brewing Association to visit its plant.

The scientific program was again taken up and the following papers were read by title and referred to the committee on publication:

"The Common House Fly as a Factor in the Spread of Tuberculosis." By Surgeon J. O. Cobb, P.H.&M.H.S.

"Pulmonary Tuberculosis, its Diagnosis and Course under Favorable Climatic Conditions." By Dr. Edward D. Sinks, U.S.A.

"The Dangers of Unrestricted Traveling of Consumptives." By Assistant Surgeon John W. Trask, P.H.&M.H.S.

"Asiatic Cholera." By Major John A. Metzger, U.S.V.

"Notes on a Case of Myeloid Sarcoma of the Head of the Tibia." By Assistant Surgeon W. C. Rucker, P.H.&M.H.S.

"Note on the Le Tulle Autopsy Method." By Assistant Surgeon William C. Rucker, P.H.&M.H.S.

"A Case of Tropical Dysentery." By Contract Surgeon Alfred Terry Short, U.S.A.

"Tubercular Adenitis with marked involvement of the Pancreas." By Assistant Surgeon W. J. Zalesky, U.S.N.

A paper was then read on the subject of "Fracture of the Radial Head," by Surgeon Charles Edward Banks, P. H. & M.H.S.

At the request of the President, General Wyman temporarily assumed the duties of the chair.

Advanced from Saturday's program, a paper was presented upon the subject of "Removal of Bullets Lodged in the Sphenomaxillary Fossa," by former Passed Assistant Surgeon Lewis Stephen Pilcher, U.S.N., which was discussed at some length.

The author not being present, the following paper was read by title and referred to the publication committee:

"Some Experiences in Emergency Surgery." By Captain Robert Eddy Bell, M.V.M.

A paper on "Stokes-Adams Disease," was presented by Captain James Brew, N.G. Tenn.

"A Chest Wound by Krag Rifle at Fifty Yards," was reported by Major George H. Halberstadt, N.G. Pa., which elicited some discussion.

"The Operation for Radical Cure of Varicocele," by Lieut. Col. Augustin Aguirre, of Mexico, was read for the author by Captain S. C. Stanton and elicited a brief discussion.

On motion of Colonel Hoff the meeting adjourned

SIXTH SESSION. SATURDAY, OCTOBER 15, 1904.

THE meeting was called to order by the President and the consideration of the scientific program was immediately taken up.

The first number on the program was the "Report of a Case of Acute Rheumatic Fever as Treated by John O'Connor, M.A., M.D., by His Surgical Treatment for Acute Articular Rheumatism." by Passed Assistant Surgeon J. Benjamin Dennis, U.S.N., which was read by title and referred to the committee on publication.

"A Case of Perforating Gunshot Wound of the Stomach, Operation, Recovery," was reported by Dr. Charles A. Mittelstaedt, U.S.A., which was discussed at some length.

The following papers were read by title and referred to the publication committee:

"A Surgical Experience after a Venezuelan Battle." By Surgeon James Chambers Pryor, U.S.N.

"The Operation for Radical Cure of Congenital Inguinal Hernia." By Passed Assistant Surgeon A. C. Smith, P.H. & M.H.S.

A paper upon "Gunshot Wounds of the Ureter—Two Cases of Uretero-Vesical Anastomosis," was submitted by Assistant Surgeon General George Tully Vaughan, P.H. & M.H.S.

The following papers were read by title and referred to the committee on publication:

"Remarks on the Clinical Aspects of Cavite Fever." By Medical Director Remus Charles Persons, U.S.N.

"The Field Hospital for Use with Cavalry." By Lieutenant John Ryan Devereux, U.S.A.

"The Ambulatory Treatment of Fractures of the Lower Extremity." By Lieutenant W. A. Kuflewski, I.N.G.

"Tetanus." By Dr. Vernon MacCammon, U.S.A.

"The Quarantine of the Isthmian Canal." By Surgeon Henry R. Carter. P.H. & M.H.S.

THE PRESIDENT: I wish on behalf of the Association to extend to the foreign delegates our thanks for their presence here

during our meeting. Their active participation, their constant presence, the value of their papers and the way in which they entered into the discussion has been a large factor in the success of this Congress. I very much hope that the project proposed by Colonel Senn will be carried out and that we shall have the opportunity of meeting each other in a future congress. It is pleasant to remember that, although we are separated by wide distances, we are all engaged in the same line of work and in the pursuit of a noble calling. [Applause,]

The report of the Nominating Committee was then submitted by Captain Samuel C. Stanton, I.N.G., Secretary of the Committee, as follows:

For *President*, Surgeon General WALTER WYMAN, P.H. & M.H.S.

1st Vice President, Major ALBERT H. BRIGGS, N.G.N.Y.

2nd Vice President, General ROBERT M. O'REILLY, U.S. Army.

3rd Vice President, Admiral PRESLEY M. RIXEY, U.S. Navy.

Treasurer, Major HERBERT ALONZO ARNOLD, N.G. Pa.

For place of meeting, DETROIT, MICH.

Time of next meeting, to be fixed by the Executive Council.

The *Secretary* of the Association being a permanent official no nomination is made, the office being continuously held by Major JAMES EVELYN PILCHER, U.S.V.

On motion of Major Seaman the report of the Nominating Committee was unanimously adopted.

The President named Colonel Senn as a committee of one to escort the President-elect Surgeon General Wyman to the chair, and the appearance of the new president was greeted with generous applause.

THE PRESIDENT: Gentlemen, I have great pleasure in presenting to you my successor. An introduction is not necessary. I can with the greatest confidence turn over the affairs of the Association to my distinguished and able successor, being assured by his election of the continuance of our present progress in military medicine and surgery. [Applause.]

THE PRESIDENT-ELECT: Mr. Retiring President and Gentlemen: It is needless for me to say that I feel very greatly the honor of this election. I wish to return my sincere thanks for the honor conferred upon me personally and upon the Service which I represent.

There is something peculiar about this organization which makes it particularly delightful to belong to it. I have felt so ever since I first became associated with it, and that feeling has been continually on the increase.

Under the guidance of our retiring president we have had a most successful year. We have had a most successful meeting here, and the papers which have been read and the discussions which have followed them will make this annual meeting stand out prominently in the history of this organization. Every one of us must have felt,—as we listened to the papers and heard the discussions,—we must have realized the practical and scientific value of these meetings, so that I feel peculiar pride in being one of the first members of this organization.

We have also had in connection with this meeting another very pleasing feature, and that is the presence of the first president of the Association, Colonel Senn, who, as you may not all know, timed his arrival after thirty thousand miles of travel to come here and be with us at this meeting before he even returned to his home in Chicago. [Applause.]

As to the coming year, I hope to demonstrate my appreciation of the honor you have conferred upon me by working strenuously for the continued success and prosperity of the organization.

I believe that the choice of Detroit as our next meeting place is a very wise one. It is a beautiful city, the invitation to go there came to us in a very delightful and courteous manner, and I want to appeal to each one of the members here to do all that is within his power during the coming year to advance the interests and the membership of the Association.

Before entertaining a motion to adjourn there is one little matter I wish to speak of in connection with the work before us, and that is with reference to this international organization that has been proposed and for the carrying out of which organization a committee has been appointed. In accordance with the suggestion of Colonel Senn, which I think is a very wise one, I believe it would be deemed advisable to consider the committee which has been appointed as a permanent committee, at least un-

til the Association declares otherwise, because the work of that committee must extend over a considerable period of time. At any rate we cannot have a report from that committee until the next annual meeting, and in the meantime its members could communicate with each other and have a meeting prior to our next annual meeting to determine upon the best manner in which an international organization could be brought about. [Applause.]

MAJOR MONTELIUS: It is evident from the reports submitted by the Auditing Committees that our financial affairs are in elegant shape. The JOURNAL edited by Major Pilcher, gives evidence of the fact that a great deal of time and careful labor is expended upon it as well as upon the regular work of the Secretary's office, and I beg therefore to make a motion that the honorarium of the Secretary be increased by the addition of \$500.00 a year. The motion was numerously seconded and being voted upon prevailed unanimously.

THE PRESIDENT: I am sure we are very heartily in accord with that resolution.

If there is no further business to be brought before the meeting I will entertain a motion to adjourn.

On motion of Major Seaman the meeting adjourned *sine die*.



The Opening Session.

After an overture by the 24th United States Infantry Band, MAJOR JAMES EVELYN PILCHER having been called to the chair by the President, the exercises were opened by an—

INVOCATION,

BY THE REV. LEON HARRISON, D.D.,

CHAPLAIN IN THE NATIONAL GUARD OF MISSOURI.

ALmighty GOD, pour out thy benediction upon these thy servants that are striving for the healing of men, and for their physical soundness and for their strengthening. We ask Thee, O ! God of Battles, bless these thy children, that through the struggle itself may be brought about a lasting reign of peace. And grant, in thy wisdom, unto these earnest men that they may find the path of wisdom and learn more largely the way of healing and the way of strengthening.

Upon their spirits rain Thou thy compassion, that they may have pity upon the suffering and lessen their pain, and may they school themselves in the endeavor to lessen human misery. And though they are serving in the cause of war, yet through them, we pray Thee, bring about the day when they and all men shall realize the devilishness of bloody slaughter and learn the way of peace; when the sword shall be beaten into the ploughshare and the spear into the pruning hook; when nation shall not lift the sword against nation, neither shall they learn war any more, and their mouth shall be filled with a knowledge of good as the waters cover the sea. Amen.

THE CHAIRMAN: As Governor Francis, who is on the program for an address to the Association, is delayed for a few moments, I have the pleasure at this point of introducing to the audience Colonel Pietro Imbriaco a distinguished surgeon of Italy, who will speak in behalf of the foreign delegates.

THE FOREIGN DELEGATION AND THE ITALIAN REPRESENTATION.

BY COLONEL PIETRO IMBRIACO,
MEDICAL DEPARTMENT ROYAL ITALIAN ARMY.

IT is my honor to salute this Association in the name of the Sanitary Corps of the Italian Army and the Foreign Delegates present at this Congress. When our Minister of War was pleased to choose me to represent my colleagues of the Army at this Congress I hesitated in accepting the great honor bestowed upon me. I, an obscure worker in the modest field of military medical practice feared, and I now fear, that with my imperfect knowledge of your tongue, I may fail worthily to discharge my mission.

But I am made bold by my great desire to know intimately this marvellous country in which the exuberant energy of a people has reached its highest development and a natural tendency toward things positive and practical has in no wise impeded the evolution of the purest ideals of science and art.

This occasion was rendered to me the more seductive by the fact that I should be enabled to behold this wonderful Exposition which furnishes added proof that this is in truth the land of initiative and of stupendous undertakings.

For us Italians the United States holds an especial attractiveness. Here may not only our humble day laborer find work and bread, but our artist turns hither encouraged by the reception which greets his efforts, and our scientist comes, confident of a wider field for the application of his invention. And therefore it is not only with a sense of deep admiration that we natives of the classic land of Columbus and Vespucci greet you, but also with a feeling of sympathy and gratitude.

It is fitting that a movement with the exalted aim of an international fellowship between military sanitary institutions should take root and mature in this country. The spirit of humanitarianism, which characterizes our times and which reached its noblest manifestation in the Convention of Geneva, and new military systems and modern armaments, necessitating corres-

ponding facilities for the care and succor of the wounded in war, render necessary a reform in the organization of military sanitary service in order that progress may be uniform throughout the armies of the world. I am deeply gratified then to be permitted to attend a Congress which has in its program to cooperate with views of so philanthropic a character.

Gentlemen, before I retire, permit me to express my best thanks to this honorable Association for its courteous and welcome invitation, to the authorities, and to my colleagues of the glorious Army of the United States for their cordial and gracious reception.

THE CHAIRMAN: I have the pleasure of presenting one more officer representing a large foreign contingent, an officer who is not only a member of a foreign service of distinction, and who has not only seen war service and won distinction in other countries than his own, but who is also a man who has recognized the value of this Association almost since its beginning by being identified as an associate member. I present to you, as representing the great English speaking world, Col. G. Sterling Ryerson of the Canadian forces. [Applause.]

THE ENGLISH SPEAKING FOREIGN DELEGATES.

BY COLONEL G. STERLING RYERSON,
ARMY MEDICAL SERVICE OF CANADA.

I CAN assure you this is a very unexpected honor. I came here today in a semi-official capacity to attend the meeting of this very interesting and useful organization. The service to which I have the honor to belong is represented by the Director General of my department, but owing to unfortunate circumstances in the way of railroad transfer he is lamenting the loss of a kit. Some of us have lost our kits for all time and some for a day or two. I am sure our Director General will be in a position to present himself to you in a day or two.

Perhaps while I am on my feet, I should say how very greatly I appreciate the service of this association. It seems to me that of any service that can be beneficial to humanity that of the medical profession is the greatest. Heroes are usually those that are killed. We do not make a hero of a butcher or a slaughterer, but we make a hero of the soldier who makes a business of kill-

ing the most men in the shortest time and with the least expense to the country. The doctor who goes out on the battlefield sees only the embodiment of misery, and he is relegated to the background except on special occasions; he usually follows the rut of the army, and it follows that he gets a good deal of dust. That has been my experience.

I think an organization such as you have here will be able to raise his status with regard to his relation to the army, and you will be able to present yourselves to the public in your true light, and you will be able to appear to the world in the way in which it should regard you. The object of the profession in the organization of this association is one that deserves the support of every medical officer, not only in the United States, but in every foreign country.

While we are of different nationalities, we have only one object in view, the benefit of humanity, and that is what the medical officer stands for, no matter what his nation or creed or color may be, and this Association is one that should be appreciated not only by the people of the United States, but by the people of all the countries of the world.

I thank you very heartily that you have given me an opportunity to say a few words, although I was entirely unprepared, having learned only a few minutes ago that I was to address the Association; and I wish to say that I approve and appreciate the work of this organization and the efficient way in which the officers carry it out. [Applause.]

THE CHAIRMAN: An old book, which some of you may have seen lying about your father's home, although possibly comparatively few of you are familiar with it, contains this phrase: "By their works ye shall know them." Judging the gentleman I am about to introduce by this criterion we should know a great deal about him by what we have seen since we came to St. Louis in the way of works for which he is responsible. We are proud and pleased to have with us this afternoon a man of such distinction, a man who has served in the cabinet of the President of the United States, who has served as governor of a sovereign state, and who has carried to successful completion and now presides over the greatest and most successful Exposition the world has ever seen. [Applause.] I have then the honor and the pleasure of introducing to the International Congress of Military Surgeons the Hon. David R. Francis, President of the Louisiana Purchase Exposition. [Applause.]

THE LOUISIANA PURCHASE EXPOSITION.

BY THE HON. DAVID ROWLAND FRANCIS,

PRESIDENT OF THE LOUISIANA PURCHASE EXPOSITION.

AFTER the flattering and graceful introduction by the presiding officer I feel somewhat embarrassed in appearing before you. Not that I am inexperienced in making speeches of welcome, but there are audiences and audiences, and

without reflecting on other audiences I desire first to pay my respect to the extraordinary degree of intelligence of an audience composed of military surgeons.

The official management feels flattered by your having selected the exposition grounds for the scene of your meeting of 1904. When the invitation was extended to you to hold your meetings on these grounds and you accepted the same, we felt additional encouragement in the work we had before us.

As your chairman has said, we have installed here an exposition which speaks for itself. The local man-

agement, it is true, have worked hard for more than half a decade back to inaugurate this exposition. We flatter ourselves that it is entitled to be called a Universal Exposition. But the committee could not have accomplished this work without the assistance and co-operation of other countries and other nations of the world than our own. The Universal Exposition means a great deal when



Hon. David Rowland Francis,

you take into consideration that in order to be called a universal exposition properly it must have representation from every civilized country on the globe, and it must be participated in by all people. We think we have here a participation of all races, of all creeds and of all nationalities. You may see man in his primitive state, and you may see him in the most advanced stage of civilization.

To interest people of all sections of the world in an exposition to be held in one locality, and that locality up to within a few years comparatively unknown to the civilized countries of the world, has required a great deal of work, and has required years of time and has necessitated a great outlay of money.

This exposition has been in operation now for about five and one-half months. It has been visited by people of intelligence, by people of culture from all parts of this country and from the civilized countries of Europe. It would be unbecoming for me to boast of what is here. We ask of you who are attending this International Congress to give these exhibits a careful inspection. Study them in their relations to each other and pass judgment yourselves upon this exposition. No class of men is better qualified to determine what it means to classify all of the material works of man than is a congress of military surgeons. Expositions are of frequent occurrence, but it is very seldom that there is held in any country an exposition that can justly lay claim to being called universal. When you think what it means to divide all the products of the human race into classes so they will not cross each other, and so that none of the products will be omitted, you may then realize what a task has been accomplished. We have been complimented by other exposition managers, from our own and other countries, by being told that this classification is the only comprehensive and scientific classification that has ever been made, that it has never been surpassed or equalled by the classification of other expositions. We have divided all the products, the material products of mankind into fifteen classes, and those classes are again divided into groups, and all this without crossing each other, that take in all the products of civilization. If you only think for a moment you may

know that it must have been a stupendous task, and when you take that classification and go through the exhibit palaces here and see installed the best that the human mind and the human hand has been able to produce, then you will realize that a universal exposition is a task which a community undertakes but once in a lifetime.

I do not need to call your attention to the palaces that we have prepared for this exposition; they also speak for themselves. There have been other expositions, and great structures were erected in which to place the exhibits of those expositions, but I dare say there has never been another exposition where those buildings in their relation to each other were so harmoniously placed with their surroundings, and in every way so beautiful and so embellished as are those of this exposition.

We do not claim the credit for ourselves, but we mean to lay it where it belongs. The commission found the best talent available, wherever it might be, in the United States. The commission employed ten firms of architects, the best we could find, and each was to devise a general scheme for the buildings, and each department was given to an architect for the purpose of drawing a design of a building, and all those were submitted to a commission of architects and harmonized by changes. Then after being located the question was how they should be connected and how they should be surrounded. For the landscape scheme we are indebted to a Missouri man, a man from Kansas City. You may not have heard of him before, but his name will go sounding down through the ages as a man abreast with the foremost. Look at this landscape scheme and tell me if you have ever seen it surpassed, and if you have you have seen more than any of the guests we have here from any section of the country.

I am not here to boast of this exposition. If we measure it by the standard of pecuniary results it may not be successful. The City of St. Louis furnished \$10,000,000 and the federal government \$5,000,000, and if there is nothing returned they will not be disappointed. [Laughter.] You cannot measure the success of such an undertaking by dollars and cents. It has effects which will continue to be felt for at least a generation to come,

and those effects will not be limited to this section of the country in which this exposition is held. The effects of this exposition will be such as could not have been contemplated by those who make the exposition or by those who visit it. Within three weeks a lady visiting the exposition called at the Belgium building, and in looking at their exhibit of education she was so pleased with it that she immediately sent three of her children to Belgium to be educated, and they are now en route on the ocean to their destination.

There has never been an exposition that devoted so much money, so much time and so much space to education as this exposition. This is the first exposition to dignify the educational progress of the world by devoting one of its large palaces exclusively to the gospel of education. You can see in the palace of Education how much each state expends for education. The per capita cost of education in each state is set forth, and you will see the effect of that in all the states participating in this exposition. The beneficial effects of education were never so impressively presented to the people of the country or to the people of the world as they are at this exposition.

There are various problems that arise in the mind of one who contemplates what can be seen in this universal exposition. We of the United States, living under a republican institution, have been inclined to the opinion, and I do not say that we have changed in this conclusion—we have been inclined to the conviction that our institutions develop the best faculties of the human mind. In a country such as ours we make greater progress in the arts and sciences, because the people themselves are free, because they are their own governors, because their ideal developed all of their faculties, and I think if that test were applied to the exhibits of this exposition we would not change our convictions. At the same time, if you will look at some of the exhibits in those palaces you will see that a great industrial advancement has not been so marked in countries ruled by monarchies, by countries whose governments were absolute monarchies, as has been made by countries living under republican institutions. Of course, it depends not only upon the form of government, but how that form of government is managed.

An exposition of this character presents many problems. A mind impressed with this thought might go back to the cause of this.

But I was not going to philosophize in giving you these few words of welcome. I desire to express the hope on the part of the management that the members of the Congress may prolong their stay to the farthest extent possible. I am sure that so far as you have the time you will make an intelligent observation of these exhibits. There are ways and ways of seeing the exposition. You can go on the intramural railroad, on automobiles, in a rolling chair, and you can see the landscape effects, you can see the exhibits, you can go through the exhibit palaces and say you have seen the exposition. You may go into the Palace of Machinery and say that you have seen the largest engine that has ever been shown at an exposition. One of the greatest curiosities at Philadelphia was the 1000 horse power Corliss engine; at Chicago the largest shown was of 3500 horse power, while the largest here is of 6500 horse power. You may see all these exhibits and then you will have a way of judging them. In all the exhibit palaces you will find lectures are delivered almost every hour of the day. I am sure an intelligent body of men could spend three months inspecting these exhibits, and it is my opinion, and I have before expressed it, that a two months' careful examination of these exhibits is worth more than would be ten months spent in the best educational institution in the land.

One of the great problems of modern times is the education of adults. We send our children to school, but when they leave school they have little time for mental improvement, and if they have the time they do not have the inclination. There are very few men in number who take good books on scientific subjects and give those books careful reading. There are very few after giving them careful reading that have an intelligent comprehension of what they have read. But if those men will go through those palaces and see the best in the line of human endeavor that is there presented they will, in a short time, have a much more intelligent comprehension.

This exposition is not devoted, has not been and will not be

to material purposes alone. We have had an International Congress of Arts and Sciences. It was the first of the kind ever attempted. There have been congresses in connection with other expositions. During the exposition at Chicago there was a Congress of Religion participated in by almost every country that had religious convictions and fads, and such congresses have been interesting, but there never was a systematic effort made as has been made in this Congress of Arts and Sciences held here. It was participated in by several hundred savants of the world. The proceedings of that congress will be published in book form, and it will mark an epoch in the intellectual progress of the world.

I am not going to detain you longer. Suffice it to say that the management feels honored by the complimentary expressions we have heard from men of intelligence and observation. We feel that we have to the extent of our ability complied with all of the promises made to the world when this exposition was first planned. We feel that its effects will be long felt throughout this country, and that they will also be felt to a degree in the foreign countries participating.

We shall treasure as one of the pleasantest recollections in connection with this exposition your international meeting of military surgeons. We appreciate the position which you gentlemen occupy in your profession. We place a very high estimate upon the value, upon the benefit of your profession to the human race, and if, in your experience here, not only in your deliberations, but in that which you see and hear in connection with this exposition, you shall have felt benefited to any degree, so that hereafter you may not only pursue the work of your profession more effectually, but that you may pursue it with greater satisfaction to yourselves, we shall be more than pleased.

I thank you for your attention and again express the hope that your stay with us may be pleasant and profitable. [Prolonged applause.]

THE CHAIRMAN: It is not necessary, in this audience, at least, to mention the name of the gentleman whom I am about to introduce, but nevertheless, I have the honor of presenting to you Medical Director John Cropper Wise, U.S. Navy, president of this Association, who will now deliver the president's annual address. [Applause.]

The President's Annual Address.

THE IDEAL MILITARY SURGEON.

By JOHN C. WISE, M.D.,

MEDICAL DIRECTOR IN THE UNITED STATES NAVY.

IF we were to test the civilization of a nation by the number of eminent men it has produced, very high in such a list would we place the republic of France.



Medical Director John C. Wise.

To call the roll of those of her children who have advanced the sciences and adorned the arts, would be but to review the history of these subjects, while in the theater of war, she has produced the Master Spirit; though born an Italian, he was in his instincts, training, and aspirations essentially French.

A further and singular distinction of this gifted nation, was that while her great military genius astounded the world with the brilliancy of his strat-

egy and grand tactics, carrying the disaster of war alike to the palace and the hovel, she contemporaneously produced a man, who above all others, before or since, labored most abundantly

to bring to the armies of his distressed country the blessing of a, completely organized, and efficient "corps de santé."

Even though surrounded by the attractions and allurements, of a great historic exposition; though we have valuable papers, and able reports, to claim our attention; not for a moment will I regret, and I trust you may not, the time I shall take to picture to you, however imperfectly, the splendid personality of Baron Larrey, the greatest of Military Surgeons.

At the very outset, I quote you as an introduction to the man the following noble words, written in his latter days. "Regarding the esteem and the consideration of the public, as the most flattering recompense for the man of sensibility, and the most worthy of his ambition; happy if I have been able to merit it, by my zeal in the fulfillment of my duties, and by the efforts I have incessantly made to contribute to the progress of a science, to which my life has been consecrated; especially happy if I can be useful to my country, by presenting to it the results of my labors and observations, and thirty years honorable service." Most of you are familiar with the character, but I ask to recall his services to stimulate ours, to cite his career for our instruction, above all to speak of his preeminent abilities and nobility of character, as an example for all humanity and to the imperishable honor of Military Medicine and Surgery.

Larrey was born in 1766, in the village of Campan, Hautes-Pyrenees.

After receiving an academic education, including the study of philosophy, and the ancient languages, he became a student in the office of his uncle, a surgeon located at Toulouse. Later we find him in Paris competing for a position in the Naval service.

We have so complete a history of Larrey in his "Memoirs"* (which alone is a noble monument) that the motive of every act can be traced. General, the Baron Ambert, in his biography,† has pictured this great surgeon as no other could: his is not the review of his confrere, but of an officer of the line whose senti-

*Memoirs de Chirurgie Militaire et Campagnes. 4 Vol. 8vo. Paris. 1812-17.

†Le Baron Larrey. Par le General Joachim Ambert.

ments were inspired by the noble life of unselfish devotion enacted before him daily.

Larrey tells us of his first visit to Paris, thus: "I arrived at the metropolis in 1789, a few days after the celebrated Louis, Perpetual Secretary of the Academy, had announced that a public examination would be held for a certain number of auxiliary surgeons for the Navy, for the department of Brest. This proposition was so consonant with my disposition for travelling, that although I might be obliged to abandon my original design, I did not hesitate to become a candidate, and had the good fortune to obtain one of the proposed appointments." Larrey was then in his twenty-first year. He was attached to the "*Vigilante*," which wintered in port, and in this period we have the key-note of the subject of our sketch. He did not succumb to the allurements of social life and dissipation, but we find him rather visiting the prisons of the galley-slaves, the arsenals, the magazines and ship-yards, and as he says, "turned my attention to everything that related to navigation and the duties that would devolve upon me on ship-board." This commencement characterized the man's entire career, doing thoroughly both practically and scientifically all work that presented and justifying Ambert's application to him of the motto "*Fais ce que dois advienne que pourra*." On his return from his first cruise to France, he was a man of reputation and was ordered to Paris, where he continued to study at the Hotel Dieu and the Invalides, being especially attracted to work in ambulance organization, then being perfected by the celebrated Desault.

In 1792, having been transferred to the Army for ambulance work, we find him first in the field with the Army of the Rhine. Here his career really commences and from now on, until the star of Napoleon waned, he was almost continually in the field. It was during this campaign that Larrey conceived and put into execution his ambulance organization, which was so successful as to become the model of all Europe. This service was composed of several divisions, in such manner, that one division represented the entire system and could be multiplied in accordance with the needs of an army.

In speaking of Larrey's plan, General Ambert writes: "It was not only a surgical system that Larrey had invented, it was a veritable military organization, which lent itself to strategic combinations, as well as to administrative exigencies. He had combined the sanitary service in such manner as to place it in relation with the admirable divisional order of our armies. Larrey multiplied his units, without modifying their composition. A few hours thus sufficed to assure that important branch of the service; on the other hand, the division sub-divided into brigades, or demi-brigades for secondary operations." While engaged in this important field-work Larrey found time to investigate the phenomena of galvanism, and to send an able and valuable report to the French Academy on gunshot wounds.

He was promoted and won from Beaulharnais the highest encomiums on the results of his work, and the statement that his "indefatigable labors in the care of the wounded had contributed to the cause of humanity and the country."

On returning to Paris, he is directed to organize the ambulance system for all the armies of the Republic, and on the completion of this service, he is ordered to the school of Military Medicine at Val de Grâce as Professor of Surgery. In 1795 he served with the Army of Italy. Napoleon on seeing the splendid work of his "ambulances volantes," thus addressed the famous surgeon: "Your work is one of the happiest conceptions of our country."

In May 1798 Larrey embarked as Surgeon-in-chief of the Expedition to Egypt.

The services of this officer, in this most celebrated campaign, is a complete history of the duties of the military surgeon. To give in detail the story of Larrey's work in Egypt and Syria, would be but to write the history of those campaigns, he was in every battle, in defeat as well as victory. At all times we figure him as the genius of mercy with outspread wings and sheltering arms, carrying succor and surcease of sorrows wherever he went. Today he is experimenting to find the causes and an efficient therapeutics, for all-prevailing ophthalmia, tomorrow with other "Officiers de Santé," defending the Military Hospital at Cairo from attack,

and let those who call medical officers "non-combatants," note that on this occasion, two of Larrey's staff, Roussel and Mangin, fell mortally injured at his side, in defense of the wounded,—but we read "the sick were saved." In Syria, Larrey literally lived among the sick and wounded, establishing at every convenient point well organized hospitals, he sent to them with miraculously swift transport, those incapacitated for duty at the front. It is in this respect that Larrey probably evinced his greatest genius as a Military Surgeon,—he conceived correctly the requirements of the situation from the sanitary stand-point, and his intelligence and success in fulfilling these conditions for the best disposition of the sick and wounded on the field of battle, are unequaled; yet while discharging administrative duties on this grand scale, he performed daily hundreds of capital operations, thus realizing our highest conception of administrative and professional talent.

The Army of Bonaparte was attacked in Syria by the plague, and when we reflect on the status of our knowledge of the disease in this enlightened age, we can but reflect how much worse were the conditions in Larrey's time. He fought the pest heroically, as we would expect of him, and with every means known to the science of his day, but to see eight of every ten cases die; yet undaunted he relaxed not in his ministration. Of thirteen hundred wounded embarked from Egypt for France, we are told there were but eight deaths; with unrelaxing care, and attention to ordinary methods of cleanliness, Larrey obtained as good results, on this occasion, as we now have, with antiseptics.

Just as we find Larrey in Egypt, so he is elsewhere; we note the same unalterable devotion to duty, the same great humanity and supreme pity, the same self-command, the most intense love for scientific observation; combined with these qualities, he possessed an exalted courage in disaster, a spirit so high, a resourcefulness so inexhaustible, as to command not alone the respect, but the reverence of the Army, as well as that of all Europe.

Returning to France, Napoleon made his great surgeon Chief Medical Officer of the Guard, and pinning upon his breast the insignia of the Legion of Honor, the First Consul said to him: "C'est une recompense bien meritée."

Is it not a worthy tribute to the brotherhood of our noble calling, that after Napoleon's army entered Berlin, Larrey was made a Doctor of Medicine of the University of Jena? Thus his enemies rewarded him.

After the arduous campaign of 1808 in Spain, Larrey's health failed; no physique could elaborate the resources he required of it. He contracted typhoid in treating an epidemic of this disease among English prisoners.

After a leave spent in Paris, thanks to his vigorous constitution, he is soon well again and able to rejoin the Emperor before Vienna in 1809; here as at Berlin, he is crowned with highest honors and delivers a course of lectures on Military Surgery. He had practiced surgery on every battlefield and so he taught this science in every conquered capital, receiving no guerdon but the unanimous applause of a civilized world.

His work in reorganizing the hospitals in Vienna was enormous; one day while thus engaged, a parchment was placed in his hands. Napoleon named him a Baron of the Empire, with an annuity of 5,000 francs.

To us gentlemen this was his most inconsiderable monument.

In 1812 Larrey was named Surgeon-in-Chief of the Grand Army, Desg nettes, his old friend in Egypt was *M decin-en-Chef*, and together they labored to make preparation for this most formidable armada; to-day we cannot conceive of it, for being one of the most immense mobilizations of modern times, it was at a date prior to steam transportation, anaesthesia and antisepsis; but Larrey had set about a task as impossible as that of Napoleon. At the outset, ambulances were in insufficient number for the care the wounded.

The Surgeon-in-Chief sacrificed his own conveyance to no purpose. At Smolensk the most ordinary surgical supplies were wanting and Larrey left here 10,000 wounded, and all his reserve staff: flaming villages, and death dealing cold was all prevailing, —no medicine, nor dressing, no food or transport! Such was the situation of the French army, even before the battle of Moscow, September 7th, 1812. Larrey's great soul viewed with intense calm and profound sorrow the inevitable outcome of such a situation.

At the end of this September day, there lay upon the field, of the French, forty general officers and twenty-nine thousand men, killed and wounded, while on the Russian side the loss amounted to sixty thousand!! Such slaughter is almost incredible.

The devotion of the French medical staff, which labored day and night, amidst great privations, on friend and foe alike stands to-day as a most sublime tribute to our profession.

The historian of the Empire, M. Thiers, quotes Larrey as the most reliable authority at the capture of Moscow to the effect that the Army could have existed six months on the provisions captured there.

Such a spirit as Larrey's could not be crushed in the despair of this famous retreat.

General Ambert tells us "the ambulances marched in the centre of the column, surrounded by surgeons who, sustained by the attitude of Baron Larrey, lavished their care on the sick and wounded. On all sides they called on Larrey: who marched in front carrying succor and encouragement wherever he went, placing his gourd to the lips of the dying and dividing his crust with those left behind. No circumstance shows the indomitable courage of the man better than temperature observations, taken with an instrument carried attached to the lapel of his coat; such was a spirit which animated Ambler, writing his journal with freezing fingers in the Arctic.

At the passage of the Beresina with fifty thousand souls crowding two small and insecure bridges, their rear galled by the Russian fire, Larrey's life was saved by the soldiers, who taking him in their arms passed him from one detachment to another.'

After the battles of Lutzen and Bautzen it was reported to Napoleon that many conscripts mutilated themselves in order to escape further military service; the mutilations consisted of wounds of the hand, or a loss of fingers, making it impossible to handle arms. The Emperor's indignation was beyond all bounds; he considered the honor not only of the army, but the nation at stake. Larrey, who had examined many of the wounds, declared that they were not voluntary. Napoleon then ordered an official inquiry in each case, and so important did he consider a

correct solution, that the Court was composed of officers of the highest rank.

Larrey's plan was to inquire minutely into the circumstances of each case, the character of the injury, and how it was received, as would be done in any medico-legal procedure,—thus making the task long and laborious. It was established, that most of the wounded were young conscripts unfamiliar with arms, who were invariably from the front rank, being shot by those in the rear; others it was shown had been wounded when scaling hills and holding their pieces in front of them.

Thus Larrey was looked upon as the conservator, not only of the lives of his comrades, but also of their honor. He was as well known among the men as the Emperor himself, and was always welcomed with him.

The great drama in which these two remarkable men, Napoleon and Larrey, had so long and brilliantly acted drew near to its close. Larrey, as we would suppose, wished to follow the Emperor to Elba, but he was denied this last and extreme test of fidelity, his sovereign telling him, "you belong to the Army, you must follow it." Yet they met again on the fateful field of Waterloo, where Larrey's ambulances were dispersed by a charge of cavalry.

As we would expect of a nation, whose civilization was so much in advance of all Europe, the humane side of war was early recognized in France, yet the efforts at relief of the wounded were seldom, if ever, extended to the enemy, and indeed, a "service de santé" in its full meaning, and import can be said to have originated in the Army of the Rhine, under Beauharnais, being conceived and consummated by Baron Larrey. The service for surgical assistance had hitherto been rather an annex to the military family of some great commander; thus Vesalius, served with Charles V, and Ambroise Paré, was attached to the camp of Vendome. If we speak of Military Surgery in its truer sense,—that rendered on the field of battle, and in military hospitals involving also the collection and transport of the wounded—we do not hesitate to name Larrey as its creator. If any doubt the truth of this assertion, let them compare Paré at the siege of Metz,

under the Duc de Guise, with Larrey at Vienna with Napoleon. At Metz there were neither hospitals nor surgeons, and the military authorities cared so little for the wounded that as the current phrase put it, "the bed of honor of the wounded is a good ditch." The "service de santé" of Larrey comprised not only all that is fully comprehended in the words today, but it had at its head a man so greatly gifted with administrative capacity and practical surgical qualifications combined, that it can be truly said, no age before or since has produced his equal. As Ambert says of him, "Larrey was a complete Army Surgeon, he was the first of his race. Until his day the grandeur and importance of the surgery of armies had been ignored. Not only did he organize the service, but he elevated it to the height, that Napoleon elevated the edifice of his military power. He had the intrepidity of the trained Captain, the secure probity of the honest administrator, the ardor and activity of the simple soldier, and the humanity of a father, besides a goodness and simplicity that made him beloved by all, and a virtue which commanded universal respect. Ambition was a stranger to him; he disdained fortune, and lived in the midst of the Grand Army as a man apart. He was also General in Chief; he had his army, that he commanded and manoeuvred. At the sight of the enemy Larrey made his dispositions; his "avant garde" penetrated afar to find the wounded; his line of ambulances is a battle corps with attending reserves."

"This army which conserves is made in the image of that which destroys. He places an ambulance here and dispenses one there, according to the new position taken by the combatants. He measures the development of the battle, considers in turn the artillery, the accident of the field, the depth of the columns and collects the dead and wounded. He takes no account of rank or nationality, but has for all words of encouragement, and is sufficiently master of himself, to preserve even under the mitrailleuse, sweetness, benevolence, and charity. Never did Larrey neglect to plough the field abandoned by the enemy and, collecting the wounded as brothers, prove to them that, if France 'is great in her courage, she is also great in her humanity.'"

Such is the man I would present to you as the highest ideal

for us to follow, such in his absolute human completeness, is the surgeon, the soldier, and the gentleman.

In the contemplation of a career such as this, we must admire it as a whole. It is not his devoted efforts to succor the plague-stricken in the deserts of Syria; it is not the majestic nobility of his example or his heroic self-sacrifice amid the rigors of an arctic winter in Russia; it is not his loyalty which saved the honor of the army at Bautzen; it is not the administrative capacity, which organized the first "service de santé" in the field, as well as the hospitals of fallen capitals, before whose walls, he had a few hours before performed hundreds of capital operations; nor is it for his fidelity at the last,—but it is rather for all of these things, combined with a nature so gentle, a humanity so unfathomable, that makes the character of the splendid Larrey, and marks him as one—

"Cast in the majestic mould
Of those high-statured ages old."

As worldly rewards go, this man was requited. Every court and academy in Europe vied to do him honor, but he loved best, we are assured, the mute yet eloquent look which told of pain relieved and suffering assuaged.

At Val de Grâce, the French school of military medicine where he lectured, they have placed a monument to his character and services; his name has been written high upon the arc de triomphe de l'étoile, yet those who most love and revere his life and example, will find his fitting memorial in the shaded walks of Père la Chaise, where on the stone which marks his resting-place are the words, taken from the will written at Saint Helena:

"The most virtuous man I have ever known."

Original Memoirs.

OUTLINE OF THE ORGANIZATION OF THE DEPARTMENT OF HEALTH OF THE ISTHMIAN CANAL COMMISSION, ISTHMUS OF PANAMA.*

By JOHN W. ROSS, M.D. ‡

MEDICAL DIRECTOR IN THE UNITED STATES NAVY; DIRECTOR OF HOSPITALS AND ACTING CHIEF SANITARY OFFICER.

THE State of Panama seceded from the United States of Colombia, November 3, 1903, and was recognized as an independent nation—the Republic of Panama—by the United States of America on November 6, 1903.

Ratifications of the treaty providing for the construction of a Trans-Isthmian Panama Canal were exchanged between the governments of the United States of America and of the Republic of Panama, on the 26th of February, 1904, at Washington, D.C. Said Treaty was proclaimed on the same day.

Under this treaty the Republic of Panama ceded to the United States of America, in perpetuity, a strip of territory, known as the Canal Zone, ten miles wide—five miles on either side of the Canal—and extending from the Atlantic to the Pacific Ocean.

The members of the Isthmian Canal Commission,—Rear Admiral John G. Walker, U.S. Navy, Chairman; Major General George W. Davis, U.S. Army; William Barclay Parsons, C.E.; William H. Burr, C.E.; Benjamin M. Harrod, C.E.; C. Ewald Grunsky, C.E.; and Mr. Frank J. Hecker,—were appointed by President Roosevelt in March, 1904.

The ownership of the Panama Canal property and of the Canal was transferred by the New French Canal Company to the Isthmian Canal Commission, May 4, 1904.

*Up to September 26, 1904.

Major General George W. Davis was, by the President, appointed Governor of the Canal Zone, May 9th, and took command thereof May 17, 1904.

The Isthmian Canal Commission sailed for Panama March 29th and arrived at Colon April 5, 1904. They took with them as sanitary advisers: William C. Gorgas, Colonel and Assistant Surgeon General, U.S. Army; John W. Ross, Medical Director, U.S. Navy; and Louis A. LaGarde Major and Surgeon, U.S. Army.

This party remained upon the Isthmus about two weeks, during which time they visited the most important points (some of them repeatedly) on the Canal Zone; the cities of Panama and Colon, as well as the Island of Taboga, nine miles down the Bay from Panama. During this time the sanitarians made a careful survey and study of the existing and prospective sanitary conditions and requirements. On the way back to New York they made out and submitted to the Commission a report, setting forth their views and recommendations for the organization and equipment of a health department competent to meet all the sanitary difficulties which could present themselves during the construction of the Canal, even when operations would be at their maximum.

After the return of the party to the United States, the Isthmian Canal Commission appointed Colonel Gorgas as Chief Sanitary Officer; Dr. Ross as Director of Hospitals; Surgeon H. R. Carter, P.H.& M.H.S., as Chief Quarantine Officer; Major La Garde as Superintendent of Ancon Hospital; and Mr. Joseph A. LePrince as Chief Sanitary Inspector. These officers then selected their principal assistants, proceeded to the Isthmus and began their work.

During the month of August, Commissioner Grunsky called together in frequent conferences the above mentioned officers, together with the Superintendent of Colon Hospital and the Supervising Architect; and, with them prepared a plan of organization of a Department of Health to meet the needs of the first year of service and the conditions prevailing during the time of preparation for canal work on a large scale. This plan of organization was approved by the Commission, and went into effect on

the 3rd of September, 1904. What follows in this paper is taken largely from said plan of organization.

According to this scheme, the Department of Health, with jurisdiction extending beyond the limits of the Canal Zone, is a branch of the Government of the Canal Zone and is considered an administrative department of the Canal Zone Government. The affairs of the Department are administered by a Board of Health, composed of four members, namely: the Chief Sanitary Officer, the Director of Hospitals, the Chief Quarantine Officer and the Chief Sanitary Inspector of the Canal Zone.

The Chief Sanitary Officer is the executive head of the department, empowered to direct its operations, enforce sanitary regulations, and report to the Governor relative to the operations of the Department.

The Department of Health is divided as follows: a sub-department of hospitals, under the Director of Hospitals, embracing the hospital at Ancon, the hospital at Colon, and emergency hospitals and dispensaries along the line of the Canal; a Maritime Quarantine Service; a Sanitary Service for the Canal Zone; a Panama Health Office, and a Colon Health Office.

HOSPITALS.

Ancon Hospital: This institution, situated at the Panama end of the Canal Zone has about 160 patients and a capacity of about 500 beds. All buildings need more or less repair, and screens are to be provided for the wards and balconies, in order to reduce to a minimum the opportunity of the malaria and yellow fever-carrying mosquitoes to reach the patients.

A number of new buildings are to be constructed, which, with the old buildings, will be provided with modern appointments such as electric lights, telephones, etc. There are two chapels, one for Protestants and one for Catholics.

A training school for nurses will be established at Ancon Hospital, the number of Student Nurses being limited to 30 first-year students, and to a total of 75. They will receive \$12 a month during the first year, \$15 a month the second year, and \$18 a month the third year. No one will be admitted to the train-

ing school who has not the necessary educational attainments according to a standard prescribed by the Director of Hospitals. The student nurses will receive travelling expenses to the Isthmus of Panama from New York, New Orleans or San Francisco; also return expenses to one of these cities in case of service for at least one year, or in case of disability by reason of sickness.

When these Institutions were taken over by the Isthmian Canal Commission there were in Ancon Hospital, the Stranger's Hospital and Colon Hospital, 22 Sisters of the Order of St. Vincent de Paul (Sisters of Charity). Such of these Sisters as desired to remain on the Isthmus were invited to continue in service, all to be placed at Ancon Hospital. The Director of Hospitals is authorized to enter into an arrangement under which not to exceed \$100 per annum is paid for the services of each Sister.

The Superintendent of Ancon Hospital is Major Louis A. La Garde, U.S. Army.

Colon Hospital: This hospital has a capacity of 100 beds, expansible to 300 beds. It is formed by the coalescence of two institutions; one, formerly the French Canal Company's hospital, and the other the hospital of the Panama Railroad Company. Both are situated over the water, supported by masonry piers on the coral reef forming the water front strip of Manzanillo Island, on which island Colon is situated. Between these two structures there is room—some 250 feet—for another ward building also over the water on the coral reef. This new building is to be erected at once. It will have a capacity of about 150 beds. The hospital grounds will be enlarged and made to include practically all that part of Colon on the northerly portion of Manzanillo Island.

The Superintendent of Colon Hospital is Surgeon L. W. Spratling, U.S. Navy.

Hospitals along the Line of the Canal: Emergency hospitals will be required along the line of the Canal where large numbers of men are concentrated, as the work progresses. The Chief Sanitary Officer estimates that twenty of these hospitals will ultimately be needed, but necessity exists at present for only three. Two of these, eight beds each, have been started, one at Culebra and one at Gorgona, suitable buildings having been secured at those

places. The third is in process of establishment at Bohio. The personnel of each hospital will be one Physician, one Nurse, two Ward Attendants, two Orderlies and one cook. Each hospital will be thoroughly equipped and will have combined with it a dispensary.

The physicians of these hospitals are: for Culebra, P. A. Surgeon H. A. Stansfield, U.S.P.H.&M.H. Service; for Gorgona, Dr. William Fawcett Smith; and for Bohio, Dr. T. B. Wingo.

Two additional dispensaries will at once be established at points along the line where the employes of the Canal are out of reach of the Hospitals. The physicians selected for these dispensaries are Drs. J. P. Bates and H. T. Summerhill.

Very thorough and valuable dispensary and sanitary work is being done for the Health Department of the Isthmian Canal Commission, on the line, at Empire and the adjacent stations of Bas Obispo and Las Cascadas, by Surgeon William H. Bell, U. S. Navy, the Medical Officer of the U. S. Marine Battalion stationed at Empire. In this he is ably seconded by Assistant Surgeon James Miller, U. S. Navy. Empire and Bas Obispo are important stations with a considerable personnel, and the services these officers are cheerfully rendering us gratis would otherwise require all the time of at least one salaried medical officer of the Commission, whom we are now able to utilize elsewhere.

Santo Tomas—the City Hospital of Panama: This is managed by a Board of five Directors and contains about 150 patients. It is badly constructed, little or no attention being paid to modern hygienic requirements, wretchedly administered, and with entirely inadequate medical attendance and nursing. Steps are being taken to remedy these defects. Lieut. Theo. C. Lyster, U.S.A., Executive Officer of the Sanitary Department, is to be appointed Superintendent; and the Supervising Architect is making plans for the reconstruction of the buildings, installation of the proper plumbing, etc.

Strangers' Hospital, Ancon: This institution, conducted for the last quarter century, by the "Comision de Beneficencia" of Panama, for the benefit of foreigners, seamen, etc., has been very recently absorbed by Ancon Hospital.

Leper Colony, "Lazaretto:" This is situated on the water front, in the outskirts of Panama; and consists of a few shacks, incapable of protecting its seven to nine inmates from the torrential rains. The lepers receive no medical attendance or nursing whatever, and get only about half enough to eat. The Government of Panama has money enough appropriated to make these lepers comfortable, but it has not been the especial business of any one to look out for them. The Governor of the Canal Zone, the Chief Sanitary Officer, and the Director of Hospitals have taken this matter up with the President of the Republic, and with other officials of Panama, who now manifest considerable interest in the matter. The probabilities are that, within a short time, a suitable and permanent institution will be established for the care and comfort of the lepers.

The Insane: The insane of Panama have heretofore been kept in the city prison. Since the establishment of the Government of the Canal Zone, the lunatics who have presented themselves, have been cared for in a temporary arrangement, in buildings within the grounds of Ancon Hospital. Preparations are being made for the construction of a building sufficiently large for the accommodation of the insane of both the Canal Zone and the Republic of Panama.

Internes: In the organization of the medical staff, provision is made for internes. It is believed that here as in the hospitals of the United States, the graduates of medical colleges will find suitable material for post-graduate work. Those who are selected will receive free transportation from New York, New Orleans or San Francisco to the Canal Zone, \$50.00 a month while in service here, and free transportation back to one of these cities after a years' service, or in case of disability from illness. At present, only fourteen internes, eight for Ancon Hospital and six for Colon Hospital will be appointed. Should an interne be assigned to duty in some other capacity, after a service of not less than one year, he will receive not less than \$125 a month.

Trained Nurses: In the personnel of the Department of Hospitals provision is made for 42 trained women nurses at Ancon Hospital, 14 at Colon Hospital, and one at each of the

hospitals along the line. At present we have only about 20 on the Isthmus. Our nurses receive \$50 a month, with board, lodging and washing, and are entitled to six weeks leave of absence during each year of service. Transportation is furnished them from New York to the Isthmus.

Ward Maids: Ward Maids, being such young women as desire to gain experience as nurses but who are not sufficiently well educated to entitle them ultimately to certificates as trained nurses, will be accepted into the service of the Hospital. Their compensation will not exceed \$12 a month during the first year of service, \$15 a month during the second year of service, \$18 a month during the third year; thereafter \$20 a month.

SANITARY SERVICE OF THE CANAL ZONE.

No work being done by the sanitary force upon the Isthmus is of greater importance than that which, by breaking up the breeding hiding places of anopheles and stegomyia mosquitoes, will reduce the danger of malarial and yellow-fever infection. This work is now in charge of a Chief Sanitary Inspector, under whom there are eight assistant inspectors. The work done by these inspectors is not confined to inspection, but includes actual direction and supervision of work for the extermination of mosquitoes and a general cleaning of premises and places, and the disposal of night-soil and waste.

Chief Sanitary Inspector Joseph A Le Prince, is in charge of the Sanitary Service of the Canal Zone.

Panama Health Office: At the head of the Panama Health Office there is a physician who will act under the direction of the Board of Health and be in direct charge of the health and sanitary work in that city. The Health Officer of Panama is given all powers necessary to enforce sanitary regulations in the city of Panama. This is of vital importance to the success of the attempt that is being made by the Sanitary Department to decrease the occurrence of malarial and yellow fever in the Canal Zone and the two adjacent cities. The Health Officer, in addition to the ordinary duties, provided it becomes necessary to exercise the same, devolving upon a Health Officer, such as examining cases of suspected contagious diseases, vaccinating school children and

the poor, guarding the water supply, abating nuisances and the like, has authority to clean premises at the expense of the property owner, to clean out drains and gutters, to enforce sanitary regulations, and even to clean and sweep the public streets if occasion should arise.

Dr. Lewis Balch is the health officer of Panama.

Colon Health Office: What has been said with reference to Panama Health Office applies with equal force to Colon. The Health Officer there, when in need of consultation, can call upon the Board of Health.

Surgeon L. W. Spratling, U.S. Navy, is the Health Officer of Colon.

All persons coming to the Isthmus in the employ of this Commission are required to bring with them, health certificates from reputable physicians, certifying that they are sound and in a suitable physical condition for life on the Isthmus. Salaried employes hereafter taken into the employ of the Commission on the Isthmus will not be entitled to free medical treatment, unless they are physically sound and in good health at the time of their employment.

Convalescent Station, Taboga Island: There is a large structure of two stories on Taboga Island, built by the French as a sanitarium and used by them as such—usually referred to as the Convalescent Hospital. It is capable of accommodating about 150 convalescents. An expenditure of \$6500 has been authorized by the Commission to put the building in a suitable condition of repair, after which it may, when required, be used for the purpose indicated. This station will doubtless be a valuable adjunct to the Hospital establishment of the Isthmian Canal Commission.

Taboga Island lies in Panama Bay, nine miles due south of the city. It is four miles long and two broad, covered entirely by small hills, the highest of which has an elevation of 935 feet.

It contains a village which has a population of about 600 people, mostly engaged in agriculture and fishing.

Owing to the topography of the island no standing water exists, although there are many small streams and springs in the hills. The steamship companies of Panama secure from Taboga

all the water supplied to vessels entering this port. Large tanks have been erected on the island and the supply is copious. The drinking water contains considerable quantities of iron, and has an isthmian reputation for wholesomeness.

The rainfall is less than at Panama and, owing to its location there is always a breeze blowing over the island. The almost total absence of mosquitoes, the pure air, the abundance of pure tonic drinking water, and the comparatively dry and invigorating atmosphere, have made Taboga for years the health resort of the Isthmus generally, and the City of Panama especially. Many persons have their summer residences there, and all those who can do so go there to recuperate after the debilitating fevers of the tropics.

PERSONNEL OF THE MEDICAL DEPARTMENT OF THE CANAL ZONE.

IT has recently been officially announced from the office of the Isthmian Canal Commission that the following medical officers have been assigned to duty in the Canal Zone to the functions indicated and with the compensation mentioned in each instance: Colonel William C. Gorgas, U.S. Army, chief sanitary officer, \$7,500; Medical Director John W. Ross, U.S. Navy, director of hospitals, \$7,000; Major Louis A. LaGarde, U.S. Army, superintendent of canal hospital, \$6,000; Dr. Henry R. Carter, P.H.&M.H.S., chief quarantine officer, \$5,750; Surgeon L. W. Spratling, U.S. Navy, in charge of sanitary work, \$5,250; Dr. A. B. Herrick, pathologist and clinician, \$4,000; Captain A. N. Stark, U.S. Army, physician, \$3,600; Dr. H. A. Stansfield, P.H.&M.H.S., in charge of laboratory, Panama, \$3,000. Mr. J. A. Le Prince, sanitary officer, \$3,000; Lieut. Theodore C. Lyster, U.S. Army, executive officer, \$2,400; Dr. Lewis Balch, health officer, \$3,000; Dr. E. S. Wheeler, assistant physician, \$2,400; Dr. W. F. Smith, assistant physician, \$2,400; Dr. T. B. Wingo, assistant physician, \$2,400; Dr. D. Lacroisade, assistant physician, \$2,400; Dr. Lloyd Nolan, assistant physician, \$1,500. Drs. J. C. Perry, C. C. Pierce and F. W. Ames have also been appointed members of the medical staff, but their salaries have not been determined; they are officers of the government services, and have been ordered to report to the governor in Panama.

Contemporary Comment.

THE IMPERIAL MILITARY MEDICAL SCHOOL AT ST. PETERSBURG.



Dr. Roman de Wreden, Privat-
Docent in the Russian Imperial
Military Medical Academy.

AT the last meeting of the Association of Military Surgeons Dr. Wreden of the Russian Army gave an interesting account of some features of the work of the Imperial Military Medical School at St. Petersburg. M. Marcou in a recent number of the *Archives G n ral s de M decine* gives a rather more detailed description of the institution. It is the only school of the kind in Russia and takes the place in the University of St. Petersburg which would have been occupied by a general Medical Department.

It is an ancient institution, having celebrated its centennial in 1898. It is the oldest medical school in Russia, and its history is connected with the first rational efforts at instruction in the empire. Peter the Great was the first to found a school of medicine. He built several hospitals, but there were no physicians to manage them. In 1798 the Emperor Paul signed a decree ordering the construction of the Medico-Surgical Academy. Gradually it rose to its present position. The German influence in the field of medicine has been very strong, but even at the time when French culture dominated all the departments of intellectual activity in Russia, its influence in medicine was *nil*. In the olden times it was the seminaries of priests.

especially, which furnished the medical students; for the medical career could scarcely be called brilliant. But gradually, the situation has been improving, and a larger number of young men have turned their attention to medicine. Even now the Russian military physician is more poorly paid than any other officer of corresponding grade. Only the Russian Christians or Mahometans are admitted to the school; Israelites are refused. The number of students is limited to about 750. That is a small number for a large capital. But there is also the Institute for Women Physicians, with 1,200 students. The cost of the course for a year is sixty roubles, or \$32. The course extends over a period of five years, and, after finishing it, the student is at liberty to practice anywhere in the vast empire. The students enter the school at about eighteen years of age. They wear a uniform, and carry a saber, and are officially under military discipline. The students and professors, in reality, form part of the army.

For each course there is a commanding colonel. He inspects the students, signs their passports and all sorts of papers, and, in case of any disturbance, he judges the culprits. But, in spite of appearances, no trace of military spirit exists in the school. In general, the students appear to be very quiet, and hard workers. At the end of five years there is a comprehensive and long examination, consisting of twenty-eight parts, which alone gives the right to practice. About 150 students are given the title of physician, with "satisfactory" or "extremely satisfactory." From this number about seventy can be presented as candidates for the Institution of Improvement. A thesis, usually on general pathology, is presented by each candidate, without any signature. These theses are compared, and the ten most desirable are designated, and the authors are "Physicians of the Institution of Improvement." These young physicians are connected with the school for three years. The first seven are paid \$53 a month. The other three are not paid, but have the same privileges. They choose a specialty, and study with a professor for the three years. They pass examinations during this time to obtain the title of Doctor of Medicine, which is of more value than the first title of Physician which they have received. Every year several of the young physicians are sent to a foreign country to study in the line of the specialty which they have chosen.

After a period of two years of foreign study, the student is eligible to the examination leading to the title of Privat-Docent. Thus the student will have spent, at the end of this time, ten years in study—five in the academy, three with a Russian professor and two abroad. The professor is at liberty to choose his own assistant. As to the election of professors, when a chair is vacant, the fact is published, and every physician in Russia is at liberty to present himself as a candidate. Generally they are chosen from the old assistants, or from the provincial professors. The professor is calm in his manners, and speaks without gesticulating. Original work is especially encouraged among the members of the faculty, the institution appropriating annually a sum of about \$800.00 for distribution among the professors of the institution who, during the year, have produced textbooks on subjects connected with their special department of medical science. This year the money was divided between Professor Bechtereff, for a book on the functions of the brain, and Professor Kravkoff, for a manual of pharmacology.

The scholastic year lasts from the 16th of September to the 1st of May. The first two years are devoted to the preparatory course. The last three years to the special medical courses. The theoretical work lasts from nine o'clock in the morning to two o'clock in the afternoon. Laboratory work is very comprehensive and carried out on a large scale. To this the afternoon and evening hours, especially are given up. The Minister of War is very generous, and large sums are devoted to the maintenance of the laboratories. The instruction of the hospitals amounts to very little, and a vast amount of material is wasted. At the end of the first year, if the examinations are not satisfactory, the student is dismissed from the school. The examinations of the other years are less severe.

This medical school at St. Petersburg supports a complete corps of medical instructors, which compares favorably with the faculties of the large capitals of the West. The writer believes that the theoretical instruction and laboratory advantages are more comprehensive than the same work in Paris. On the other hand, the hospital work in Paris is superior, for the students can work in all the hospitals of the city. Finally, everything is ruled methodically here, and the student is not left to himself as he is in other countries.

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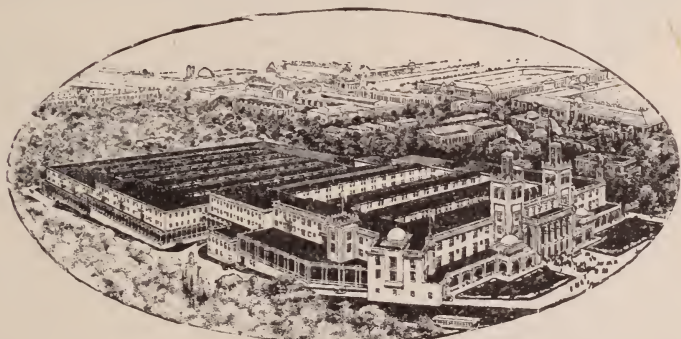
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Editorial Expression.

FEATURES OF THE ST. LOUIS MEETING.

THE meeting in St. Louis was characterized by two conspicuous features,—the absence of special entertainment upon the part of the people of the city and the prominence in the meetings of the foreign delegates. These factors were naturally due to the peculiar situation of the Convention,—the Exposition itself providing ample social entertainment and the special arrangements for an International Congress calling forth an unusually large representation of foreigners. The scien-



The Inside Inn.

tific work of the Association was of a high grade and of an abundant amount, the program for this meeting being the most complete and best rounded program the Association has yet been able to provide. While no special entertainments were provided for the Association the members were individually invited to the reception given by the Missouri Commissioners to the Governor and military guests and a banquet had been arranged for, which had to be given up on account of the many conflicting interests.

The Inside Inn, the Association headquarters, proved to be a disappointment to many, although men accustomed to the hard-

ships of campaigning could hardly complain of the conditions there presented. It was an enormous set of pigeon holes accommodating nearly five thousand people, built of paper, plaster boards and a little staff, which combined to form a series of sounding boards which seemed, in the small hours, to magnify every noise a thousand fold. The enormous crowd of people seeking entertainment at this caravansery was such that the individual was practically wiped out. It was far more difficult to find a guest whom one desired to meet than to locate the proverbial needle in a hay stack. Nevertheless most of the guests of the house, after remaining a few days, were able to adapt themselves to the conditions and to endure the situation with a considerable amount of comfort.



The Badge of the Thirteenth Annual Meeting.

The tremendous distances presented upon the grounds made it a matter of real consideration in endeavoring to meet an engagement at a definite hour. It took half an hour to go from the Hotel to the Hall of Congresses, in which the meetings were held, even when the Intramural Railway was utilized, and to walk from one to the other at the ordinary rate of gait took nearly an hour.

A piece of courtesy upon the part of the Association which was highly appreciated by the recipients, was the giving up of the Hall of Congresses on Tuesday to the Daughters of the American Revolution, the Association meeting being held on that day in Library Hall in the same building as the Hall of Congresses.

The badge of the meeting was the handsomest local badge ever provided as may be seen from the accompanying engraving. It is also of especial interest since under the action of the Associ-

ation it became the last local badge, unless the organization should at some future time vote again to adopt such a badge. It seemed to many of the members of the Association that the insignia of the Association was ample and that the cheaper badges rather belittled the organization than otherwise and for this reason it was voted to dispense with such decorations in future.

THE OFFICERS OF THE ASSOCIATION, 1904-1905.

AT the recent meeting, there seemed to be no question whatever as to the officers of the Association for the coming year. But one candidate was presented for each of the offices and the vote in the Nominating Committee was unanimous. It has now become a recognized custom in the Association that the presidential chair should be filled alternately by representatives of each of the four elements composing the organization and that the occupants of the Vice Presidential chairs should move upward each year. An election then to the third Vice Presidency means the Presidency of the Association four years later, a fact which adds much to the dignity of the position and to the responsibility of the Association in selecting men to occupy it.

It was a foregone conclusion then that Surgeon General WALTER WYMAN, the distinguished chief of the Public Health & Marine Hospital Service of the United States should become the President of the Association. The persistent and faithful attendance upon the meetings of an unusually large number of officers of the Public Health and Marine Hospital Service demonstrated the loyalty of his Corps to its head. It was fitting that St. Louis, the birth place of General Wyman, should also be the scene of his installation into the Presidential chair of the Association. Of the work of the new President during past years little need be said. He is an administrator of such experience and such success that the greatest results may be anticipated from his administration. His personal enthusiasm in the work of the Association of Military Surgeons is such as to justify the warmest anticipations as to his accomplishments during the coming year.

while his kindliness of nature and tactfulness of disposition should still further confirm the harmonious spirit which now prevails in the councils of the Association.

General Wyman is now fifty-six years of age, having been born in St. Louis August 14, 1848. He received his early education at the City University whence he proceeded to Amherst College where he received the degree of A.B. in 1870 and later the degree of A.M. The St. Louis Medical College was the scene of his professional preparation, conferring the degree of Doctor of Medicine upon him in 1873, a preparation which was further developed by two years work in the hospitals of St. Louis.

Soon after this Dr. Wyman entered upon his life work proper by accepting an appointment as Assistant Surgeon in the Marine Hospital Service. He received promotion to the rank of Surgeon in 1877 and served successively at St. Louis, Cincinnati, Baltimore and New York, after which he was summoned to the headquarters of his Corps at Washington where he served continually until he succeeded to the command of it. During this time he had charge of the publication of sanitary reports and statistics and produced many important works pertaining to this subject. The Purveying Department was also under his direction and by him brought to a high degree of excellence. His main duty however and the work to which, in the latter part of the period previous to his appointment as Surgeon General in 1891, his time was exclusively devoted, was the supervision of the Quarantine Department of the Marine Hospital Service.

General Wyman has evinced especial interest during his entire career in the humanitarian side of his work, having devoted especial attention to the physical conditions affecting seaman of the merchant marine. He brought before the public the cruelties inflicted upon the crews of oyster vessels in Chesapeake Bay and established hospitals for the treatment of their sick and injured. He secured an act for the relief of deck hands on western rivers. He established even before his appointment as Surgeon General a Hygienic Laboratory which has since developed into one of the most important sanitary institutions of the country resulting in many investigations of the highest importance to public health.



Surgeon General Walter Wyman, P.H. & M.H.S.,
President.—1904-1905.

He was in charge of the government measures to ward off cholera in 1893 and is still by law charged with administration of national quarantine stations. He established and is chairman of the Yellow Fever Institute of the Public Health and Marine Hospital Service, and originated and established the sanatorium for tuberculous sailors at Fort Stanton, New Mexico. Under his direction are twenty-two Marine Hospitals and a large number of Relief Stations, giving relief annually to more than fifty thousand sailors of the merchant marine. He also has charge of national quarantines in Porto Rico, Hawaii, the Philippines and Alaska,



Major Albert Henry Briggs,
First Vice President.

together with the marine hospitals located there. He is especially interested in the international sanitation of cities, particularly seaports, with a view to rendering rigid quarantine unnecessary and is the author of a plan for an international agreement by the republics of the western hemisphere to bring this about.

The work of sanitary improvement, to which Dr. Wyman's career has been devoted, has involved many valuable contributions to public health literature, which have appeared in the form of professional and popular journal

articles, addresses and communications, in addition to the massive series of Reports issued under his supervision during the past fourteen years.

He has not permitted his official administrative duties to distract his attention from professional work, but has constantly kept up his relations with the profession. He early became a member of the Association of Military Surgeons of the United States. At the recent meeting of the American Public Health Association he served as president. He is an active member of the American

Medical Association, the American Medical Editor's Association, the National Geographical Society, the Climatological Society, and the Washington Academy of Sciences. In 1897 the Western University of Pennsylvania recognized his work with the honorary degree of LL.D.

Under the administration of a man so fitted for executive work by long and successful experience, the Association may well anticipate an exceptionally successful year.

MAJOR ALBERT HENRY BRIGGS has from the beginning of the Association been



General Robert M. O'Reilly,
Second Vice President.



Rear Admiral P. M. Rixey,
Third Vice President.

one of its most active and efficient members. He has been a medical officer of the 65th Regiment of the National Guard of New York for a quarter of a century, twenty-one years of the time as Major and Surgeon, during which time the ties of friendship between himself and the Regiment have grown so firmly that he has uniformly declined offers of promotion which would necessarily carry him away from the Regiment. During the last year Major Briggs again declined promotion for this reason. No man has done more for the Association and to no one is the

Association more strongly indebted than to its First Vice President.



Major Herbert Alonzo Arnold,
Treasurer.

geons, the rehabilitation of the Medical Corps itself are all important developments of General O'Reilly's management of his bureau which augurs well for the administration of the Association when he shall have succeeded to its Presidency.

The new member of the list of officers is REAR ADMIRAL PRESLEY M. RIXEY who was elected to represent the Navy as a Vice President. Dr. Rixey has long been an earnest and active supporter of the Association of Military Surgeons and his friendship

It is very fortunate that the Medical Department of the Army is represented in the Vice Presidential chair by the charming personality of SURGEON GENERAL ROBERT MAITLAND O'REILLY. It was expected that an officer of the experience, tact, judgment and energy of General O'Reilly would make a deep impression upon the Surgeon Generalcy during his occupancy of that office. The reorganization of the Hospital Corps, the substitution of a Medical Reserve Corps, for the corps of Contract Sur-



Major James Evelyn Pilcher,
Secretary.

has been of the highest advantage to the organization which now takes great pleasure in honoring him by placing him in line of election to its highest office. Admiral Rixey has done much for the Naval medical service, his most recent accomplishment being the enforced recognition of the right of medical officers to command in their own departments. Hitherto Naval medical officers have been simply officers in charge of Hospitals, etc., now they command,—a matter of very great moment to the service, although to outsiders it may seem but a play upon words. The entire membership, wherever located, will greet the announcement of Admiral Rixey's official connection with the Association with great pleasure and anticipate great advantage from it.

It is hardly necessary to speak of the Secretary and the Treasurer, the two remaining officers,—like Tennyson's Brook,

"Men may come and men may go,
But they go on forever."

Their work during the past year has passed the approval of the Association and they promise to continue in the future as in the past, to labor with an eye single to the best interests of the organization.

The Surgeon Generals of the United States Army.

XIV. BRIGADIER GENERAL ROBERT MURRAY, SURGEON GENERAL OF THE UNITED STATES ARMY, 1883-1886.

BECAUSE of the sudden death of General Crane in 1883 the contest for the surgeon generalcy was reopened and the official and political friends of all the ranking medical officers were besieged to use their influence in favor of the anxious candidates. It had been decided, upon the promotion of Colonel Crane to be Surgeon General that the office of Assistant Surgeon General, although the incumbent was but a Colonel, was a grade superior to that of the other medical officers of the same rank, and when Colonel Crane was promoted to be Surgeon General, Colonel Robert Murray the then senior Colonel was commissioned



BRIGADIER GENERAL ROBERT MURRAY,
SURGEON GENERAL, U. S. ARMY,—1883-1886.

as Assistant Surgeon General, although he was not brought to Washington to assist the Surgeon General as in the case of his predecessor. President Arthur then very wisely advanced the Assistant Surgeon General to the head of the Corps and Dr. Robert Murray became Surgeon General of the Army.

General Murray was born at Elkridge, then in Anne Arundel Co., Maryland on August 6, 1822. He received his early education at the public schools of his home, supplementing the facilities there afforded by the instruction of private tutors in languages. In 1838 and 1839 he experimented in business affairs in the counting room of Mr. W. G. Harrison in Baltimore, but professional life having greater attractions for him he transferred the scene of his efforts to the University of Maryland and entered upon the study of the healing art. In 1843, he took his degree of M.D. at the University of Pennsylvania, and further developed his knowledge of medicine by a year—1844-1845—at the Baltimore City and County Alms House Hospital.

He then went before an Army Examining Board, and readily became an approved candidate. Accepting a contract as Acting Assistant Surgeon, he was ordered to Fort Gratiot, Michigan, where in July 1846 he received his commission as Assistant Surgeon in the Army to date from June 29 of that year. Soon thereafter he took passage on the transport ship "Susan Drew" en route from New York to San Francisco, a six months voyage around Cape Horn. He served at Los Angeles, Monterey, and Camp Far West in California during the next four years, when he was given an eastern station at Fort Independence, Boston, Mass., for a year. In 1852 he was selected by Surgeon W. G. Mower, the Attending Surgeon and Medical Purveyor in N. Y. City as his assistant; upon the death of Surgeon Mower in 1853 he continued on duty as Attending Surgeon and Medical Purveyor until the summer of 1854 when he was relieved and ordered to California where he remained until the outbreak of the war of the Rebellion in 1861, receiving meanwhile in June 1860, his promotion to the grade of Surgeon.

Upon his arrival in Washington Major Murray was put on duty as a member of the board to examine Brigade Surgeons of

Volunteers and after the Battle of Bull Run was employed in establishing Hospitals in Alexandria.

In September 1861 he was ordered to the field and successively employed during the years 1861 and 1862 as Medical Director and Medical Purveyor with the commands of Generals Robert Anderson, William Tecumseh Sherman, Don Carlos Buell and W. S. Rosecrans in Kentucky, Tennessee, Mississippi and Alabama. During this period he carried an especially heavy load of responsibility, being widely separated from the sources of supply and with the aid mainly of inexperienced medical officers. In every emergency however, he came successfully to the front with ample, although at times necessarily crude, provision for every exigency.

His exceptional administrative capacity was then recognized by his detail in 1863 as Medical Purveyor in Philadelphia where millions of dollars passed through his hands in connection with the medical supply of the vast forces in the field. In 1865, he was transferred to the Pacific coast, where he also conducted the medical purveying work of the far west. When the Army was reorganized into a peace establishment in 1866, he was appointed an Assistant Medical Purveyor with the rank of Lieutenant Colonel. He continued in charge of this work in San Francisco for eleven years although promoted in that time to the grade of Colonel and Surgeon in June 1876. This service was then followed by two tours of four years each as Medical Director of the Divisions of the Missouri and of the Atlantic respectively. It was while on duty at the latter station in December, 1882, that he was commissioned as Assistant Surgeon General and on November 23, 1883, as Surgeon General of the Army.

With the promotion of Colonel Murray, the office of Assistant Surgeon General ceased to be the second grade in the Medical Department of the Army, it being then ruled that the Assistant Surgeon General was simply one of the Colonels in the Medical Corps, and the Senior Lieutenant Colonel, Dr. Glover Perin, was promoted to the vacancy. This rather illogical situation continued until in 1892 all the Colonels became Assistant Surgeon Generals.

The administration of General Murray was a conservative and harmonious one, attention being devoted rather to the improvement of existing conditions than to the initiation of new movements. General Murray was made an honorary member of the Association of Military Surgeons of the United States soon after its organization and has uniformly maintained his interest in its affairs.

Upon his retirement, August 6, 1886, he took up his residence at the place of his birth and is still living, 1904, in the evening of a distinguished and successful life at his boyhood's home in Elkridge, Maryland.

MADNESS IN ARMIES IN THE FIELD.

DR. Paul Jacoby, Physician-in-Chief to the Provincial Asylum of Orel, Russia, strongly urges, says the *British Medical Journal*, the necessity of a special psychiatric service for soldiers on campaign. The privations and fatigues of active service, the nervous tension caused by ever-present danger, the frequent mental shocks, alcoholism, and wounds, all predispose to madness. In the Franco-Prussian war Dr. Jacoby was struck by the number of cases of mental disorder, mostly degenerative forms and psychical traumatism, which came under his observation. Inquiry among Russian medical officers who served in the war with Turkey in 1877-8, showed that a large number of acute psychoses occurred among the troops. Such diseases were also very common among the Russian soldiers in the war with China in 1900, and many men who had gone mad were shot that they might not fall into the hands of Chinese torturers. During the present war many cases of delirium have been observed, especially in the garrison of Port Arthur. On board the *Manchuria*, when taken by the Japanese, there were found fourteen insane soldiers who were being sent back to Russia. "Let us try," says Dr. Jacoby, "to imagine the condition of these unhappy men after a six weeks' voyage spent entirely in the hold of the ship." In European wars the need for special provision for the care of lunatics dur-

ing hostilities does not make itself acutely felt, for there are always asylums of some kind within reach. But in warfare in uncivilized countries, where distances are extreme and there are no railways to shorten them, where the food supply is scanty and precarious, and where the climate adds to the general misery of things, the lot of such unfortunates is truly wretched. There are, according to Dr. Jacoby, no lunatic asylums of any kind in Manchuria; the "departments for the insane" of the provincial hospitals of Siberia are "simply appalling" and they are full to overflowing. To transport sufferers from nervous or mental disturbance a distance of 10,000 kilometres in time of war by a railroad encumbered with military trains would deprive them of all hope of cure. The novelty of the conditions under which modern warfare is conducted adds greatly to the strain on the nervous system of the combatants. Dr. Jacoby compares the sinking of ironclads by the explosion of torpedoes and mines to earthquakes and volcanic eruptions which, it is well known, are accountable for much mental disorder. He thinks it is likely that these new forms of shock will produce new forms of neurosis and mental disorder. Medical officers have already more than enough to do in looking after the sick and wounded, and there are grave objections to placing insane patients among the ordinary occupants of the military hospitals. Dr. Jacoby thinks that if arrangements could be made for the immediate treatment of insane soldiers in separate tents under special care they would have a good chance of recovery. He is of opinion that the crimes of violence, rape, etc., which are so common among soldiers in the unbridled license of war are largely due to mental disorder, and that such cases would be more effectually and more justly dealt with by medical ministration to the mind diseased than by court-martial.

Original Memoirs.

AN IMPROVED METHOD OF STANDARDIZING THE RECRUIT.

BY HENRY G. BEYER, M.D.,

SURGEON IN THE UNITED STATES NAVY.

IN order to maintain the United States Navy at its present numerical strength, it is estimated that about 12,000 men annually must be recruited. If recruiting means anything, it signifies the separation by a medical officer of the physically fit from the physically unfit, of the mentally sound from the mentally unsound, of good timber from bad timber for a most serious and important service. There are but very few officers in either service who are not, sometime during their career, called upon to perform this duty and yet it seems as if a very small minority of them ever attained to a full appreciation of its importance to the service. All the more, however, is this appreciated by the few who have enjoyed the advantages of long service with exceptional experience in recruiting, as an instance of which I may cite the quite recently published and very strong "Plea for a Higher Physical, Moral and Intellectual Standard in the Navy" by Medical Inspector Howard E. Ames of the Navy. There can never be any doubt about the fact that the service, as a working body, can never be better than its individual parts and that the difference between faulty and correct recruiting is bound to make all the difference between a naval force on paper, representative only of so many names and one, on the rolls of which every name represents the full value of a man.

The Significance of a Physical Examination.—With the aid of a physical examination, as this is understood at the present day, the experienced medical examiner selects from a given number of candidates a group of men who are superior to those left

over and who are to be rejected. This process of selection is intended not only to separate the physically perfect from the physically defective but rather to select from the former an exceptionally superior lot. Experience in recruiting has abundantly shown that there is plenty of good material to select from in the United States, if we would take the trouble to look for it and, having found it, employ the right method in making the selection.

Without taking up your time and going into the details of all the different phases of recruiting I wish to speak to you on what I am convinced will be a decided addition to and improvement in our method of selection right at the beginning. I have in mind the use of percentile grade tables, made according to the system of Sir Francis Galton of London. After an experience of over twelve years with these tables, I am impelled to recommend them to you most warmly, as most reliable aids in your duty of recruiting. In order not to be misunderstood, I should like to emphasize the fact right at the beginning that it is my intention to recommend their use merely as a guide to the examiner, merely as a means, not as an end. But when used in this sense, I know of no one single step in the method of the systematic selection of recruits that gives the examiner so much and such absolutely correct and definite information as do these tables.

For a number of years past, a table of physical standards has been supplied to the different recruiting offices and stations. On this table definite weights and chest girths are attached to different heights. The supposition is that definite weights and chest measurements bear a definite relation to the height of the human body regardless of age which is, in itself, a fundamental error. Thus, a youth of 15 years of age, measuring 5 feet 6 inches in height, need not weigh more than 110 pounds and measure more than 30 inches around the chest, in order to make him a perfectly normal and symmetrically developed subject *for his age*; while the man, ten years his senior, and of the same height, must weigh 143.6 pounds and measure 34.3 inches around his chest, to make him come up to the same grade as the boy, for his age or 25 years. This single example must do to show that, lest we deny age its

due and important bearing on the physique, we are just as likely to reject a normal physique and accept a poor one as we would be to select a good one and reject a poor one.

It would be both incorrect in principle as well as unfair to the boy to expect him to furnish measurements in certain dimensions that are not normally contained within the limits of his age. The percentile grade tables of Sir Francis Galton are free from this defect. They simply give all the dimensions that can be found within the limits of the same age, in terms of definite measurements, divided into percentile grades. With the aid of such tables which can be prepared by any one from physical examination records, the medical examiner, after determining the age of the candidate before him, can at once determine with accuracy the percentage position or relation of the examinee to all the rest of the men or boys of his age. He knows that, for instance, a boy whose height or weight or chest girth falls under the column in the table marked 30th percentile grade is taller, heavier or larger around the chest than 29, and shorter, lighter and smaller around the chest than 70 of the boys out of a hundred or more boys *of the same age*. A boy's physical rank is thus at once determined with accuracy and with as much fairness as measurements and calculations can be depended upon for doing it. Providing the measurements have been taken with care, no one can add to them nor take away from them. In no other part of the examination can the examiner find out more in so short a time as regards the physique of his recruit as he can with these tables and I, therefore, unhesitatingly recommend their employment.

Such tables have been published in the United States by Henry P. Bowditch, Wm. T. Porter and myself covering a life period from the fifth to the thirty-fifth year. When intended to be used in the selection of recruits, these tables had perhaps better be prepared from homogeneous material such as is available in the accumulated examination records in the books of recruiting offices. All examination tests that can be expressed by numbers may be represented in these tables including the sense of hearing and distant vision.

Some of the facts brought out by this method of selection.

In 1900, while on duty at the navy yard Boston, it happened that I was detailed as member of an Examining Board. Our duty consisted in the examination of about 85 applicants for positions as navy yard apprentices; the examination was to be both mental and physical. The novelty in this examination was that the candidates were to be marked on their physical as well as on their mental examination. I determined to apply the tables of percentile grades and give to each boy the grade into which he belonged as determined by his measurements. The method of marking was simple, though perhaps best exemplified by a definite case: The boy's age is calculated from the nearest birthday and found to be fifteen years; he is measured in the usual way and his height is recorded as 64.3 inches. Looking at the table of heights, we first find the line for the fifteen years old boys and follow that line until we come to 64.29" which is the mark nearest his recorded height; looking above this number we see the percentile number (50) under which this height stands. This number is the mark which the boy is entitled to receive for his height; he happens to be an average or mean boy for his age so far as height is concerned. This same process is gone through with as regards the weight and chest circumference of the boy by referring his actual measurements to the respective tables in these dimensions. The various percentages are then added together and averaged. The average number of all the percentile grades thus obtained constitutes the boy's physical rank, his final mark for his physical examination. For further details I must refer you to the original papers on this subject. Suffice it to say here, that when all the examination marks had been recorded and a comparison was made between the mental and physical marks, it was found that those boys who had made the highest mental records, also had left the highest physical records and vice versa.

This result was so startling that I determined to follow it further with a larger number of children. To this end nearly 3,000 Cambridge school children were measured and their measurements compared with their standing in school with the same results as had been obtained with the small number of apprentices

examined before. We cannot, therefore, escape the conclusion that there exists an important and very close correlation between the physique and the mental qualifications of children. These facts in their application to the subject of recruiting must now seem obvious; their value as a means of selection must be considered as very great, especially so in children and youths.

The Educational value of physical records. Besides the high scientific value which our studies of the physical records of growing children have yielded with regard to growth and development, these records can be made to have an educational value upon the child itself. Perhaps the strongest and the most persistent stimulus to mental exertion which schoolboys experience is derived from the competition among them for high examination marks. An incorporation of a boy's physical record into the total of his examination marks would undoubtedly beget in him the same interest in that part of his record and result in a serious attempt on his part to improve it, when nothing else would. The significance of a good physique being admitted, the advantages of arousing a boy's own interest in his physical development must be obvious. Of most undoubted advantage would this incorporation of the physical record be in naval and military educational institutions. The cadet as well as the young soldier with his physical marks tacked on to his permanent examination record would become much more earnest in his attempt to improve upon it. That this can be done has been sufficiently shown by a study of a boy's annual physical examination records. The energetic ones may be observed to work themselves into higher percentile grades in all the dimensions from year to year while the less energetic ones either remain behind or fall short even of those in which they were found on previous examination.

Some of the reasons why it behooves Americans to be particularly careful in the selection of their recruits. Fifty years ago, the best people in Europe rarely, if ever, served in the armies of their respective countries; the next best furnished substitutes by purchase. It was, then, from the lowest ranks of society that the common soldier was recruited. In order to show that the importance of the duty of recruiting was, even in those days, by

no means underestimated, I need only quote a few extracts from a manual on this subject, written in 1840 by Thomas Henderson, Asst. Surgeon, U.S. Army and which read as follows: "In a financial, a political and perhaps, I may add, in a medical point of view, I am not aware of any part of the duty of a medical officer which is of more importance than the inspection of recruits and the examination of inefficient soldiers; and, consequently these duties deserve a very careful consideration." (Marshall on Soldiers).

"The duty of inspecting recruits and conscripts requires the utmost impartiality, skill and circumspection on the part of the medical officer." (Austrian Army Regulations).

"The duty of inspecting recruits and of determining whether they are fit or unfit for the military service of the country, is one of the most difficult and responsible an army surgeon has to perform." (Prussian Regulations.)

It was Prussia which of all countries first recognized the important fact that the very best a country produced were none too good to serve as soldiers in the army and all those countries that ever came in conflict with that army after that time, found themselves compelled to follow in the lead of Prussia.

The impression prevails among those who have not given the subject careful attention that, in European countries, every man after reaching the age of 20 must serve in the army. We will see later, that this is a mistaken notion. While it is true that every male, after reaching the maturity age, must present himself before the Board of Inspection, a comparatively speaking small percentage is selected for active military service. According to Lowenthal, in Germany, Austria and Russia from 160-200 are selected out of every 1000 conscripts, while in France the number thus selected, on an average obtained from 1889-1900 or eleven years, reaches 683. Our own returns from receiving ships generally show that out of 1000 recruits between 5-600 are enlisted, the rest are rejected. And here, one important factor enters that must be seriously considered in order to arrive at a correct comparative estimate between the conditions as they exist in Europe and this country. In this difference are summed up all the principal

reasons, why it behooves us to be particularly careful in the selection of our recruits: While, in Europe, every man, including the best must present himself and about 20 per cent of these are selected from the top of this lot, in this country, in time of peace at any rate, the best of our people are absent and the inferior ones alone apply and from these we enlist half of them. It is, in other words, from the bottom lot that we must make our selection. Hence it must follow that the recruits which we enlist in times of peace must be inferior to the regulars of the continental armies, except by accident and in individual instances. Hence, also, we may derive the reasons for an explanation of the astonishing and quite remarkable fact of the striking superiority in physique of our volunteer regiments to the regulars, *during a war*, when the very best our country produces voluntarily come to the front in the defense of their country but, whose precious lives are generally shamefully wasted on account of their inadequate training. The fatal mistake that is often made, even by the ablest of our generals and veteran commanders, is, that the high mortality in such volunteer regiments as compared to that of the physically inferior regulars, is due to lack of endurance on the part of the former, when it is in reality due to want of necessary preliminary training, without which no regiment should be allowed to take the field. Given, however, the same *preliminary training*, such volunteers would prove superior to the regulars not only as regards endurance but in every other respect. Without it, in fact, any comparison between the two must naturally be faulty and lead to erroneous conclusions.

Up to the present, every American boy is being brought up with an overwhelming sense of his rights as a citizen of a great and powerful country. The time will surely come, although we may not live to see it, when the American boy will be obliged to cultivate a corresponding sense of his duty to the country of his inheritance. Military service and the regular army will be the school and the gymnasium combined which will give him the training to fit him properly for that part of the duty to which I refer in this connection. In other words, some form of conscription will some day take the place of the present system of profes-

sional soldiering and sailorizing, in this country as it has in the older countries.

Lord Rosebery and Sir Charles Dilke, backed by all the leading military men of England, have recommended a resort to conscription as the only means out of the difficulty with which the English army reform problem is now confronted. When it does come, do not let us make the mistake of allowing the ballot to decide who is to serve, but let a rigid physical examination alone decide, in order to insure the enlistment into the ranks of the best men the country produces. The ballot, a method proposed in England, would make the composition of an army depend on accident instead of upon an intelligent and purposive design. While selection by physical examination such as is proposed in this paper, of the best of those who are obliged to present themselves, will alone decide in the future, which one of two opposing armies will be the better, supposing, of course, that the training is equally good. Such a method of selection would result in enlisting into the service of both the navy and the army the cream of manhood of the country and fit it for service in case of war and finding it prepared both as regards training and endurance, and leave the rest to work in the fields for the time being.

DISCUSSION.

THE PRESIDENT: We have with us Lieutenant Colonel Murray of the British Army, and we should be glad to hear any remarks he may have to make upon the paper we have just heard.

LIEUT. COL. H. W. MURRAY, R.A.M.C.: I do not have much to say on the subject, except to remark that the British use a standard according to age. We take the height, weight and chest measure. If the chest measure is not up to standard he is rejected. If he is deficient in his physical development he is dismissed from the army. In all standards we have to consider the condition of the teeth, and it is rather difficult at present to find a recruit with good sound teeth. As the years go on the condition of the teeth of the people seems to be deteriorating and it is necessary to reject a great many recruits on that account. The fact is that the teeth of the candidates for the army are against them. There is a great deal of discussion going at present as to the cause of the early deterioration of the teeth and many reasons have been given. There is no doubt this fixed standard must be applied to recruits. I think Surgeon Beyer's paper is a very interesting and practical one and must be appreciated by all who have to do with the examination of recruits.

LIEUT. COL. JOHN V. R. HOFF, U.S.A.: I have listened to the paper, Mr. President, with a great deal of interest and a great deal of profit. I had studied Surgeon Beyer's article on naval recruiting and it seems to me that his suggestions are immensely valuable. I have long been convinced, and more convinced within the last two or three years than ever before, that our methods of physical examination are defective, and that we should adopt some more definite method of determining the all round value of the recruit. Whether it would be possible to carry out the Beyer method in determining the average, considering the way in which recruiting in the army is conducted, I do not know. Perhaps we may be able to evolve a method based on his suggestions.

SURGEON BEYER: We limit the men between certain percentages. If you want a larger number of men we make the percentage lower, and if you want a less number we make it higher: we make a difference in the percentage.

LIEUT. COL. HOFF: Do the naval authorities accept that as a final proposition?

SURGEON BEYER: I simply confine myself to recommendations.

LIEUT. COL. HOFF: There are some points I desire to make in regard to the paper. Surgeon Beyer laid emphasis on the fact that the physical standing of the volunteer regiments was superior to that of the regular. Such was not my experience and I carefully watched the volunteers to see how they compared with the regular regiments. Of course the question of training cuts a large figure, but when we come down to the men themselves they did not average as well as the men in the regular army. The difference between the best men and the worst men in the volunteer regiments was too great and the average was not up to the average of the regular service. Though there were some better men, there were many more worse men. We have in the army standards of age and of measurement from which we are allowed to vary within certain limitations, (ten pounds in weight and about 2 inches in chest measure), and very detailed regulations covering the physical qualifications for a recruit. Unfortunately the inexperienced examiners did not know—or ignored—the regulations, and for a time we got very poor material. We are doing a great deal better now than we were doing a year or more ago, when we were getting a class of recruits that caused every commanding officer to cry out in protest. If you have read the annual reports from general officers this year, you will remember they all agree that the recruits have not been up to the proper standard, which means that the examiners have not been up to the standard. This reminds me that I had occasion to inspect one such some time ago, and he was not able to tell me where to look for the apex beat.

LIEUT. COL. F. R. CHARLTON, Ind. N.G.: In the matter of examining recruits for the regular army I would like to know whether there has ever been any understanding other than an optional one as to whether the recruit-

ing officer has the privilege or authority to select the surgeon to examine the recruits. In my own city of Indianapolis we have had a recruiting station for years, and at times it has been a very busy station. The examination has always been severe. I wondered why something might not be done in order that some of the members of our national guard might do this work. There are a great many who would be glad to do it, I am sure, and I rather think it would be better done. I simply inquire to know whether there has ever been any understanding or anything done along the line suggested.

LIEUT. COL. HOFF: As I understand the matter Mr. President, the selection of the examining surgeon within recent times, has been practically left to the recruiting officer.

It goes without saying that it requires an expert not only in physical diagnosis, but in Army Regulations as well, to be an examiner of recruits. Such examinations are beyond the ken of the examiner for life insurance for example, for a good insurance risk would often prove a physically unfit soldier. For this reason the Government should encourage the formation of a class of trained examiners, who might be members of the proposed reserve medical corps.

Some time ago I made a suggestion to the effect that this work be done by medical officers of the National Guard, or members of the Association of Military Surgeons of the United States, to the exclusion of all others, except of course officers of the permanent establishment. I think it would be a good idea as a definite solution.

INSPECTOR GENERAL R. W. COPPINGER, R.N.: I would like to make a few remarks in regard to the procedure of the British Navy in the method of recruiting. In regard to the last point raised, there is a standard rule that no candidate is accepted unless he has passed the standard as applied by a specially qualified naval officer. In the case of recruits from country districts where no naval officer is available, the physical examination is carried out by a local practitioner, and that guarantees the expense of the recruit traveling to the nearest naval recruiting station. We have an officer on the active list and on the retired list specially qualified for that purpose. After the physical standard is applied then the educational test is made, and that is the point determined by the executive officers. One of the difficulties experienced has been the question of teeth. It has been found in a large number of cases that the teeth have broken down, not being able to masticate the hard food used at sea. In order to meet this difficulty different standards as to teeth requirements have been applied from time to time. At the present day we have fixed upon a part of the standard which has been found to work very well. It is that every candidate must have at least four sound opposed molars and must have at least seventeen teeth. We also require that vision be up to the standard, which is 6-0-6. The chief difficulty we have in medical conditions is where we have recurrent epilepsy. The candi

date is pledged to sign a declaration that he is free from epilepsy. If after the candidate has been in the service one or two years we find he is affected, it is a great satisfaction to trace the failure. With regard to the standard of height, weight and chest measurement mentioned by Surgeon Beyer, I think our standard is a little different, but we do not adopt the method regarding the mental and physical efficiency. However we regard the height, chest and weight, and unless he comes up to the chest measure requirement he is rejected. So the application of height, weight and chest measure takes precedence over other irregularities. Difficulties are sometimes experienced in the application of the age standard. We find sometimes in tracing the career of a doubtful candidate that by notes being made of his teeth and otherwise we have found we are being deceived as to his age, so that standard cannot be looked upon as absolutely reliable. In such cases the recruiting medical officer is allowed to use his discretion.

LIEUT. COL. HOFF, U.S.A.: I fear in what I said I may have created a misunderstanding. The general recruiting in our service is done in the same way as in the British service. Our recruits, taken by a general recruiting officer, are sent to a recruiting depot, and there they are re-examined physically before they are distributed to their different assignments. The recruits other than these, are sent directly to their organizations and are not re-examined. No recruit who has been enlisted is discharged for what is called theoretical disability, even if he has a disability which should have debarred him from original enlistment: having been enlisted he is retained in service until the theoretical defect develops into real disability, (which it does not always do) when he is discharged on account of conditions not incident to the service. Sometimes it takes a long period of service to develop a theoretical into an actual disability, and in the meantime there may come other disabilities for which the man is ultimately discharged. It may become a matter of great importance to the government that all defects, no matter how trivial, be noted on the enlistment paper, for every man who enlists becomes a prospective pensioner. This is another reason why we have to be on guard to prevent the enlistment of men who are suffering from disabilities, and its importance may be gauged by the fact that during the last generation the United States has disbursed nearly thirteen billion dollars in pensions.

THE UNITED STATES ARMY GENERAL HOSPITAL,
AT THE PRESIDIO OF SAN FRANCISCO,
CALIFORNIA, 1901-1902.

By COLONEL ALFRED C. GIRARD,
ASSISTANT SURGEON GENERAL IN THE UNITED STATES ARMY.

Part 5.

REPORT OF THE BACTERIOLOGICAL LABORATORY.

By CHARLES F. CRAIG, M.D.
CONTRACT SURGEON (NOW ASSISTANT SURGEON), U.S. ARMY;
PATHOLOGIST TO THE HOSPITAL.

THE total number of examinations made for a period of time from July 1st, 1901, to May 31st, 1902, has been 11,247. These examinations have been divided as follows:

Examinations of blood.....	3518
Examinations of urine.....	4395
Examinations of sputa.....	1221
Examinations of feces.....	1319
Widal tests.....	63
Malta fever tests.....	14
Blood counts.....	123
Cultures.....	52
Sections from postmortem material.....	542

The following summary shows the work done in the laboratory from October 4, 1899, when I assumed charge, to May 31, 1902:

Date	Blood	Urine	Fec's	Sputa	Widal	Mal.	Bl.C	Cul	Total
Oct. 4, 1899, to July 1, 1900,	2464	2071	313	496	561	0	.....	46	5951
July 1, 1900, to June 30, 1901,	5815	5935	1116	1251	110	.....	168	50	14445
June 30, 1901, to May 31, 1902.....	3518	4395	1319	1221	63	14	123	52	10705
	11797	12401	2748	2068	734	14	291	148	31101

During this period of time there were 1340 examinations made of sections of postmortem material, which, added to the total as shown by the above table results in 32,441 examinations for the entire period.

Examinations of Blood: For the period of time between July 1st, 1901, and May 31st, 1902, there were 3518 examinations of blood made for the parasites of malarial fever, 63 Widal tests, 123 blood counts and 14 tests for Malta fever. The total number of blood examinations made for malarial parasites for the period of time between October 4th, 1899, and May 31, 1902, has been 11,797, Widal tests 734, Blood counts 291, Malta fever tests 14.

Examinations for Malarial Parasites: Of the 3,518 examinations made during the year for malarial parasites, 175 proved positive. Of the positive cases, 134 were due to the estivo-autumnal parasites, 33 to the tertian parasite, and 8 were combined infections with the estivo-autumnal parasites and the tertian parasite. Of the 134 estivo-autumnal infections, 113 were due to the tertian estivo-autumnal parasite, 11 to the quotidian estivo-autumnal parasite, and 10 were combined infections or infections in which the type of parasite could not be exactly determined. The examinations of blood during this year for malarial parasites have shown a marked decrease in the number of cases of malaria returned to this Hospital from the Philippines. The following summary of the blood examinations made in the Laboratory since October 4, 1899, well illustrates the decrease in the malarial cases:

BLOOD EXAMINATIONS FROM OCTOBER 4, 1899, TO MAY 31, 1902.

Date	Total Blood	Total Malaria	Total Tertian	Total Quartan	Total Estivo Aut'm	Total Tert'n Estivo
Oct. 4, 1899, to July 1, 1900	2467	264	134	3	100	78
July 1, 1900, to June 30, 1901.....	5815	643	220	3	400	327
June 30, 1901, to May 31, 1902.....	3518	175	33		134	113
	11797	1082	387	6	634	518

BLOOD EXAMINATIONS FROM OCTOBER 4, 1899, TO MAY 31, 1902. (CONTINUED)

Date	Total	Combined	Mixed
	Quotidian	Estivo Tertian & Estivo	Infections.
Oct. 4, 1899, to July 1, 1900	12	27	10
July 1, 1900, to June 30, 1901.....	64	20	9
June 30, 1901, to May 31, 1902.....	11	8	10
	87	55	29

From a consideration of the above table it will be seen that the greatest amount of malaria discovered at this Hospital was in the fiscal year between July 1st, 1900, and June 30, 1901, during which time there were 643 cases in which the malarial parasites were demonstrated in the blood; although the total number of blood examinations for this year was somewhat above that for 1899 and 1902, the difference is not so great as to invalidate the result so far as the decrease in malaria is concerned. The estivo-autumnal infections still continue to be the most numerous, as they have been since blood examinations have been made at this Hospital. This is contrary to the results obtained in the Philippine Islands, where the tertian infections are said to be much more numerous. I can only account for this by the fact that the estivo-autumnal parasites are very difficult of recognition, and that many cases, because they present a marked tertian paroxysm, have been classed as tertian infections, when in reality they were tertian estivo-autumnal in type.

Classification of Malarial Infections: From the study of 1082 specimens of blood at this hospital, showing malarial parasites and observations in other hospitals and in Cuba, and the careful comparison of the different varieties of parasites observed, I believe that the malarial infections should be classed as follows: Tertian Infections, Quartan Infections, Estivo-Autumnal Infections and Mixed Infections. The estivo-autumnal infections, which have numbered 634 and which I have paid especial attention to, I believe can be divided both clinically and microscopically into 2 classes, Tertian and Quotidian. This classification,

which I at first did not believe to be correct, has impressed me the more I have studied the parasites involved, as being the only one which, both clinically and microscopically, solves the problem of estivo-autumnal infection. Certainly nothing can be clearer than the clinical symptoms attending the two varieties of fever if the temperature curve is uninfluenced by quinine. The tertian temperature curve is distinctive and is unlike that occurring in any other disease. In previous reports I have shown the morphological difference between the two varieties of estivo-autumnal parasites, and further study has only convinced me that these distinctions are comparatively easy of recognition to one who has had opportunity to make careful examinations of estivo-autumnal cases, and that in all stages of the growth of the parasite there are differences which are distinctive enough to be recognized by one trained in such examinations. The tertian estivo-autumnal infections are altogether the most numerous, of the 634 estivo-autumnal cases, 518 being due to the tertian parasite. This agrees with the results reported by the Italian investigators, who find that in Italy the tertian infections far outnumber the quotidian. It is extremely difficult to get typical cases of either the tertian or quotidian form of estivo-autumnal fever in this Hospital, as nearly all the cases have undergone treatment with quinine, and the temperature curve has become irregular and of no diagnostic value. The examination of the blood, however, in such cases will show the form of parasite which produces the infection.

Combined Infections: Of the 634 estivo-autumnal infections which have been observed, there were only 55 which showed the combination of the two varieties of the parasite. This comparatively small number of combined infections is probably due to the fact that the quinine has obliterated, in those cases which were primarily combined, the weaker parasite, thus leaving a single infection. Had these cases been observed in the Philippines, it is probable that the percentage of combined infections would have been much higher. There were 29 cases in which the type of parasite could not be determined, as the blood showed no well defined organisms but much free pigment and fragmented para-

sites. These cases had been treated for long periods of time with quinine, and when observed here were receiving large doses of the drug.

Latent and Masked Malaria: One of the most important results arrived at from the examination of the blood for the malarial parasites has been the great number of cases of latent and masked malarial infection discovered in soldiers returning from the Philippines. Although the fact is well known that malarial infection may remain latent for a long period of time in some instances, the percentage of cases exhibiting this latency, so far as reported, has not been as large as the results obtained at this Hospital seem to show. Of the 1082 cases in which malarial parasites were demonstrated in the blood, 219 were cases of masked or latent malaria, thus, of the 1082 cases, 20% were of this class of infections.

The estivo-autumnal malarial fevers are protean in their symptomatology, and unless promptly recognized and treated, are very prone to become pernicious; hence the value of a speedy diagnosis, especially when it is remembered that malarial infection is often present without giving rise to typical symptoms. In all such cases the diagnosis can be made only by a microscopical examination of the blood, which should be as much a matter of routine practice in cases of fever as the examination of the urine.

It will be admitted by all students of malarial infections that many cases occur in which the symptoms are masked by those of complicating disease processes, or in which the symptoms are atypical; and it is equally true that malarial infection may exist without producing appreciable symptoms of any kind. In the first case, we say that the malarial fever is "masked;" in the second, that it is "latent."

A masked malarial infection is one in which the malarial symptoms are hidden by those of some other disease, or in which the malarial symptoms are atypical; while a latent malarial infection is one in which, while the parasites are demonstrable in the blood, no symptoms of malaria are present. Regarding these forms of malarial fever Marchiafava and Bignami* say: "All

*Malaria. "Twentieth Century Practice." Vol. XIX.

physicians are aware that there are grave, and sometimes mortal, infections, where the rectal temperature may be little above the normal, or may even be subnormal. When the blood is examined in some of these cases, we may find parasites. The reason for this can be found only in special conditions of the patient's system; just as there may be a lobar pneumonia without elevation of temperature, especially in aged and feeble persons, so may occur grave malarial infections without fever."

Regarding masked forms of malarial fever, Thayer† states as follows: "In a certain number of instances malarial infections may cause distinct symptoms with little or no fever. These instances are not infrequent in improperly treated tertian and quartan infections, where the patient keeps about on his feet, taking perhaps an occasional single dose of quinine, enough to weaken but not to eradicate the disease. Here the process may be kept, as it were, in a permanent stage of incubation. There are, however, other instances where, for a considerable length of time, there may be more or less marked subjective symptoms with little or no fever. During the abortive paroxysm there may be slight flushing with a rise of temperature to a degree or so above normal, which may be followed by a little sweating, but usually fever is practically absent; the temperature really being subnormal during the greater part of the time."

In my work entitled "The Estivo-Autumnal (Remittent) Malarial Fevers" I have discussed somewhat extensively the masked and latent forms of estivo-autumnal fever. The following quotations are abstracted from the chapter dealing with this subject: "In latent and masked estivo-autumnal fevers we include all cases in which the estivo-autumnal parasites may be demonstrated in the blood, but in which either no clinical symptoms are present, or the symptoms which are present are atypical in character."

"I can recall a large number of cases in soldiers who have had their blood examined as a routine measure, in which the estivo-autumnal parasites were found, although there were no symptoms of the disease present. As a rule, in such cases the

†Lectures on the Malarial Fevers.

number of parasites is comparatively small, but there may be much free pigment present and numerous pigmented leucocytes. In blood from the spleen in the latent cases the entire human cycle of the estivo-autumnal parasites can be followed."

"The tertian estivo-autumnal parasite is the most common form found in such cases, although the quotidian form is by no means rare. The only explanation of the fact that the development of the malarial parasite may not, for a considerable length of time, be accompanied by clinical symptoms is either that the parasites are present in too small numbers, or that the individual infected is very resistant to the action of the malarial poison."

"The length of time during which such a latent infection may exist is as yet undetermined, but it is probable that in some cases it may be for many weeks. I recall one case in which the estivo-autumnal parasites were found in the peripheral blood for six weeks before a paroxysm occurred, repeated blood examinations being made during that time. I can recall many cases in which the parasites were found for from seven to fourteen days before clinical symptoms appeared."

"The masked estivo-autumnal fevers constitute the much larger class of cases, and their recognition is of the utmost importance from a practical point of view. Such cases more often present no rise of temperature, and in fact the temperature is often subnormal. Nervous symptoms, such as slight headache, vertigo, neuralgias of various parts of the body, or symptoms referable to some other disease may be present, as diarrhoea, acute and chronic dysentery, pneumonia, typhoid fever, etc."

"It should always be borne in mind in treating diseases in localities in which the estivo-autumnal parasites are prevalent, that some of the most pernicious forms of these fevers are unaccompanied by definite paroxysms or a rise of temperature, and that the temperature is not rarely subnormal. I recall a fatal case of quotidian estivo-autumnal fever in which the temperature never rose above 99° F., and in which the few symptoms present were those of an acute hepatitis. Examination of the blood a few hours before death occurred, showed large numbers of quotidian estivo-autumnal parasites, and the findings at autopsy were typical of death from pernicious malarial fever."

In the last report of the Laboratory I gave a resume of 172 cases of latent and masked malaria, which had been observed up to that time in this Hospital. The total number observed to May 31, 1902, has been 219.

Types of Infection: The total number of cases observed during the period of fifteen months was 219. As regards the type of parasite found, the cases may be divided as follows:

1. Tertian infections.....	49
2. Quartan infections.....	1
3. Estivo-autumnal infections.....	169
Tertian estivo-autumnal infections.....	129
Quotidian estivo-autumnal infections.....	39
Mixed tertian and quotidian estivo-autumnal infections	1

From the above table it will be seen that the estivo-autumnal infections are altogether the most common. This is an interesting fact because the tertian infections in the Philippines are said to be the most numerous, and as also showing that the fevers due to estivo-autumnal infection are much more apt to be masked or remain latent than those due to the tertian form. This may also explain, where routine examination of the blood has not been carried out, the relative frequency in the Philippines, as reported, of the two varieties of malaria. If so large a percentage of estivo-autumnal cases are masked by other diseases or remain latent, it is seen at once how inaccurate may be our statistics, where routine blood examination is not carried out, of the relative frequency of tertian and estivo-autumnal malaria.

All observers who have studied the subject in the Philippine Islands unite in claiming that the tertian infections are altogether the most numerous; but from the examination of the blood of those cases occurring in soldiers who have returned from the Philippines, my experience has been exactly the reverse, the estivo-autumnal infections being altogether the most numerous. But a large percentage of such cases were latent or masked by other complications, and would never have been discovered from the study of the clinical records alone. The relatively large percentage of estivo-autumnal infections which remain latent, or are masked, also proves how important it is that the blood be ex-

amined in every case returning from or residing in a malarious locality.

Character of Parasites: The following table illustrates the various stages in the human life-cycle of the malarial parasites which were observed in the blood in these cases.

1. Tertian infections, total number	49
Hyaline stage.....	5
Pigmented stage, $\frac{1}{4}$ to $\frac{3}{4}$ grown.....	37
Pigmented stage, full grown and segmented.....	7
2. Quartan infections, 1 case; parasite full grown	
3. Estivo-autumnal infections, number of cases.....	169
Hyaline ring forms.....	106
Hyaline ring forms and pigmented forms.....	45
Hyaline ring forms and crescents.....	8
Crescents.....	10

From the above table it will be seen that the pigmented forms of the tertian parasite were generally present in these infections, and there was no difficulty whatever in recognizing the parasite. This was also true of the one case of quartan infection observed.

In the estivo-autumnal forms, however, it will be seen that the hyaline "ring forms" were altogether the most common, and as these are the most difficult forms of the malarial parasite to recognize, it will be obvious how very often such cases would be overlooked by one not accustomed to the examination of malarial blood. While there is no difficulty whatever in recognizing the hyaline forms of the estivo-autumnal parasites, when one has had considerable practice, they are generally overlooked during this stage by inexperienced observers.

The small number of cases of latent and masked malaria which show crescents is somewhat remarkable. In the cases of latent malaria one would expect to find a large proportion showing crescents, as this is a class of cases in which crescents, are said to be most numerous. From the reports of the Medical Officers serving in the Philippines, the cases showing crescents are very numerous, but this rule has not been observed at this Hospital, as comparatively few of the cases of estivo-autumnal malaria have shown crescents in the blood. It is rather difficult to account for this unless it be that the long continued treatment by

quinine has so altered the life-cycle of the malarial parasite that crescents are no longer produced.

Number of Parasites: As regards the number of parasites present in the blood in the masked and latent cases, it may be said that, as a rule, they were few in number. As we have at this time no accurate means of estimating the number of malarial parasites in a specimen of blood, it is impossible to make an accurate classification. It has been my method as regards the number of parasites present in any specimen of blood, to speak of them as "few" or "numerous." In this loose classification I find that the following table represents the number of parasites present.

Infection.	Total No. of Cases.	No. of Parasites.	
		Few.	Numerous.
Tertian.....	49	37	12
Quartan	1	1	
Estivo-autumnal.....	169	139	30

The above table is very unsatisfactory in a number of ways, but it is probably approximately correct. The number of parasites in a specimen of blood would, of course, vary apparently upon the length of time spent upon the examination, as the longer the time spent the greater the number of parasites discovered. In the above examinations approximately the same time was spent upon each specimen.

Period of Latency: It is impossible to state accurately the length of time during which the malarial parasites may be present in an individual's blood without producing symptoms, on account of losing sight of the cases before such determination can be made. It may be broadly stated however, that in some cases the malarial parasites may be present for almost an indefinite length of time without producing the characteristic symptoms of malarial fever. In the few cases in which I have been able to make examinations of the blood at frequent intervals, covering a considerable period of time, I have found that this incubation period, as it may be called, may extend from a few days to several weeks. In one case of estivo-autumnal fever, examinations were

made of the blood every third or fourth day for a period of six weeks, and almost every examination showed a few hyaline "ring forms" of the parasite. During this period, however, there were never any symptoms which in the least suggested the presence of a malarial infection. At the end of six weeks I lost sight of the patient, but it is probable that the infection existed for a much longer time without producing symptoms. As a rule, the patients in whom the blood showed the presence of the malarial parasites included in this report developed symptoms within a week after the observation, and some of them in a much shorter time, although several went for two weeks without symptoms.

It is easily conceivable how a weak malarial infection—that is, one in which there are but few malarial parasites present—might exist for a long time without the production of symptoms, due to the small amount of malarial poison present in the body. From a study of the above table it will be seen that by far the largest percentage of my cases are to be placed in this category. The parasites, as a rule, did not number more than eight or ten in a specimen of blood observed for half an hour.

In cases, however, where the parasites were numerous, it was much more difficult to account for the absence of clinical symptoms. There is no experimental data at hand to explain these cases. The most that we can say is that the individual infected is probably immune, to a certain degree, to the malarial poison.

CLINICAL DIAGNOSIS OF CASES.

The following table gives the clinical diagnosis made before the blood of the patients was submitted for examination :

	No. Cases.	Latent.	Masked.
Chronic Dysentery.....	55	0	55
Chronic diarrhoea.....	20	20	0
Pulmonary tuberculosis.....	16	0	16
Fractures and wounds.....	9	9	0
Chronic gastritis.....	5	5	0
Amoebic dysentery.....	4	0	4
Acute bronchitis and pharyngitis.....	3	0	3
Hernia	3	3	0
Chronic indigestion.....	2	0	2
Anemia	3	0	3

Secondary syphilis.....	2	2	0
Otitis media.....	2	2	0
Acute melancholia.....	2	2	0
Insanity.....	2	2	0
Rheumatism.....	2	0	2
Paralysis.....	2	2	0
Abscess of the liver.....	1	0	1
Arthritis.....	2	0	2
Convalescence from appendicitis operation	1	1	0
Arthritis deformans.....	1	1	0
Furunculosis.....	1	0	1
Retinitis.....	1	1	0
Varicocele.....	1	1	0
Tachycardia.....	1	1	0
Cellulitis.....	1	0	1
Measles.....	3	0	3
Pneumonia.....	1	0	1
Chancroid.....	1	0	1
Acute constipation.....	1	0	1
Hemorrhoids.....	1	1	0
Adenitis, cervical.....	1	1	0
Appendicitis.....	1	0	1
Hemiplegia.....	1	0	1
Diagnosis undetermined.....	67	67	0

From a consideration of this table it will be seen that by far the greatest percentage of cases of masked and latent malaria occurred in patients suffering from diseases of the alimentary tract, especially dysentery and diarrhoea. Next in frequency comes the diagnosis of pulmonary tuberculosis.

In classifying these cases into latent and masked infections, as I have before noted, it is sometimes impossible absolutely to determine which variety of infection really existed. Some of the cases, from a study of the clinical charts, show a preponderance of symptoms in favor of the diagnosis made, and in these cases it is easy to class the malarial infection as "masked." In the study of many other clinical histories, the entire absence of any symptoms which could be attributed to malaria make it easy to decide that the malarial element was "latent;" but there occur a considerable number of cases in which the symptoms were so confusing that the distinction could not be made. Classified as

nearly as possible in this manner, the 219 cases were divided as follows:

Masked infections.....	98
Latent infections.....	121

Chronic Dysentery: Fifty-five cases in which the diagnosis of chronic dysentery was made showed the presence of malarial parasites in the blood, the type of parasite being the estivo-autumnal in forty-five cases, and the benign tertian in ten cases. In all cases in which the diagnosis of "chronic dysentery" was made, it was found by a study of the clinical charts that the dysentery existed and evidently masked the malarial complications. All the cases were having numerous bowel movements, and all showed slight rises in temperature at irregular intervals. These rises in temperature are characteristic of dysentery, and a study of the temperature charts proves that the existence of the malarial infection could not have been determined by the temperature curve. There probably occurred among the dysentery cases a small number in which the malarial infection was latent, but in the great majority of cases there were symptoms present which, taken alone, would have suggested malaria; but taken with those which are present in dysentery, completely obscured the malarial condition. I have, therefore, classed all the cases of malaria occurring in chronic dysentery as masked infections.

The occurrence of "masked malaria" in cases of dysentery originating in the Tropics is a matter of great importance, as the malarial element in so large a proportion of the cases is not recognized, and undoubtedly helps in producing the marked debility of the patient, which is invariably present in dysentery cases. In a large number of cases showing the malarial parasites, treatment by quinine caused a marked improvement in the number of bowel movements, and in several cases it must be confessed that the dysenteric symptoms were directly due to the malarial infection, as they quickly succumbed to quinine. Almost all of the dysenteric cases gave histories of previous malarial infection in the Philippines, the primary infections being diagnosed and treated. The treatment, however, was not continued, and there resulted a chronic malarial infection, presenting few typical symp-

toms, but which aided in the depletion of the patient's strength and vitality. The treatment of these cases with quinine invariably resulted in benefit.

Chronic Diarrhoea: In twenty cases diagnosed as chronic diarrhoea malarial parasites were demonstrated, and in all these cases the infection was latent. Symptoms of diarrhoea were present in all, but there was no rise of temperature, and no symptoms which could be interpreted as being malarial in character. Treatment by quinine in these cases quickly caused the disappearance of the parasites from the blood and, as a rule, resulted in the general betterment of the patient's condition; so that, while the cases have to be classed as latent, on account of the absence of symptoms, the improvement in the patient indicates that the malarial infection had some influence in the progress of the diarrhoea.

Pulmonary Tuberculosis: Sixteen cases diagnosed as pulmonary tuberculosis showed the presence of malarial parasites, ten cases being due to infection with the estivo-autumnal parasite, and four with the benign tertian. From a study of the clinical histories and temperature charts in these cases, the infection in every case was masked by symptoms which suggested pulmonary disease. Perhaps in no class of cases is the diagnosis of pulmonary tuberculosis made so often as in cases of malaria showing quotidian elevations of temperature. Such cases are often accompanied by a cough, great emaciation, profuse perspiration, and present the picture of pulmonary tuberculosis. This is especially true of cases originating in the Tropics, the emaciation in these cases being more extreme and the pulmonary symptoms more apparent than in cases originating in the temperate zone. In all of the cases diagnosed as pulmonary tuberculosis the parasites were present in considerable numbers, and treatment by quinine showed in a few days that the infection was purely malarial. The examination of the sputum in these cases for the tubercle bacillus always resulted negatively.

Fractures and Wounds: In all cases diagnosed as fractures and wounds the conditions diagnosed were present, the malarial infection being latent.

Chronic Gastritis: Five cases diagnosed as chronic gastritis showed the presence of malarial parasites in the blood, and in all these cases the malarial infection was latent, as shown by the fact that treatment with quinine did not relieve the condition diagnosed. In all the cases chronic gastritis was present, and in all of them a history of previous malarial infection was obtained.

Amoebic Dysentery: The four cases diagnosed as amoebic dysentery were severe forms of that disease, numerous amoebae being present in the faeces. The malarial infections, so far as any symptoms shown by the clinical histories, were masked. The occurrence simultaneously of the malarial parasite and the amoeba, both protozoan organisms, is of interest. Treatment by quinine in these cases resulted in benefit. But, as cases of amoebic dysentery are also benefited by quinine, it is impossible to say how much actual benefit was derived from the elimination of the malarial element. It is a fact, however, that all of these cases improved much faster after the treatment for malarial infection than they had previously.

Acute bronchitis and pharyngitis: In the three cases diagnosed "acute bronchitis and pharyngitis," the malarial infection was masked. All three cases were infected with the estivo-autumnal parasites, and the symptoms present were those of bronchitis and pharyngitis. Treatment with quinine in these cases eliminated the malarial element and also the bronchitis, but did not improve the pharyngitis; so that it is safe to say that the bronchitis present was due to the malarial infection, the pharyngitis occurring as a complication.

Abscess of the liver: The case diagnosed as "abscess of the liver" presented, from a study of the clinical history and the temperature charts, all the symptoms which are said to be classical in this disease. The man gave a history of having suffered from amoebic dysentery in the Philippines, but on arrival at this hospital presented no evidence of dysentery. Examination of the blood showed numerous estivo-autumnal parasites of the tertian variety, and treatment with quinine resulted in the disappearance of all the symptoms.

Other diseases: In the two cases diagnosed as "indigestion" the infection was "masked;" in the three diagnosed as "anemia" the infection was also masked by profound anemia, which was at first supposed to be pernicious; in the case diagnosed "arthritis" the infection was masked by this disease. This was also true of the cases diagnosed furunculosis, rheumatism, cellulitis, measles, pneumonia, chancroid, and acute constipation. In the cases diagnosed as hernia, secondary syphilis, otitis media, acute melancholia, insanity, arthritis deformans, retinitis, varicocele, tachycardia, paralysis, hemorrhoids, and cervical adenitis, the malarial infection was latent, there being absolutely no symptoms pointing to such infection.

Undetermined diagnosis: In the sixty-seven cases in which no diagnosis was made previous to an examination of the blood, the malarial infection was "latent." In most of these cases quinine was immediately given, so that it has been impossible to ascertain how long the infection would have persisted without producing some symptoms. In none of the cases was there any suspicion of malaria, as a careful investigation of the clinical histories and temperature charts demonstrates.

Most of the cases were soldiers who had returned from the Philippines having suffered there from long-continued dysentery or diarrhoea, and were returned to this country because of their debilitated condition. Active symptoms of the diseases from which they had suffered in the Philippines were not present in any of these cases, the chief symptoms complained of being general weakness, which prevented them from doing the duties of a soldier. I have taken considerable care to inquire into the medical history of these cases, in order to find out, if possible, whether or not the infections were masked by existing symptoms or were actually latent, and in every case, from the history obtainable and the present condition of the patient, the infection would have to be classed as latent. Most of the cases gave a history of having suffered from malarial attacks either in Cuba or in the Philippines, but considered themselves as rid of malarial infection.

Source of Infection. In the 219 cases of masked and latent

malaria the source of infection has been traced in 180. Of the 180 cases, 120 suffered from their first attack of malaria in the Philippine Islands, while sixty gave a history of having had their first attack in Cuba.

Of the sixty Cuban infections, it was found upon inquiry that these infections occurred during the American invasion at Santiago, and had persisted irregularly up to the present time.

In the case of the Philippine infections, the time during which the patients had suffered from malaria varied from six months to two years.

The history of all the cases showed exacerbations of the malaria at irregular intervals following the primary attack, but all of them gave a history of not having had an attack for at least one month before arrival at this Hospital.

During the period in which I have kept records of masked and latent malarial cases there have been a few instances, especially in the cases which were latent, in which no previous history of malaria could be obtained. Most of these cases had been in camp at the Presidio, California, for some weeks. They had never suffered from malaria either in Cuba or in the Philippines, so that I have been compelled to consider San Francisco as the locality in which these patients became infected. Up to within a comparatively recent period San Francisco has not been considered as a malarial region, and it has been denied by competent investigators that the estivo-autumnal type of malaria ever originated in San Francisco or the country immediately surrounding it. From my observations in the cases just spoken of, I am satisfied that cases of estivo-autumnal fever do occur, and have probably been imported by infected individuals returning from the Philippine Islands. As stated in the opening paragraphs of this report, all that is necessary to establish a malarial infection in any locality is an infected individual and mosquitoes of the genus *Anopheles*. I have repeatedly found mosquitoes of this genus in the military reservation at San Francisco, and it can easily be seen how, with the large number of infected soldiers returning from the Philippines, malaria may become endemic in this locality. The following case of estivo-autumnal fever is of interest in this connection.

The patient, a young girl, was referred to me for a blood examination by the physician attending her. She had been suffering for some time from slight fever, accompanied by chilly sensations at irregular intervals and by marked anemia. She had never suffered from malaria previously, and had not been out of San Francisco within a period of two years. The attending physician suspected malaria, and the blood examination showed numerous "ring forms" and pigmented forms of the tertian estivo-autumnal parasite. Upon careful inquiry as to the source of her infection, the following facts were elicited:

Patient lived in a locality situated between two Chinese vegetable gardens. The water used for irrigation is obtained from sunken wells which are open and filled with stagnant water. The mother of the girl stated that the people living in this locality were greatly troubled by mosquitoes; and upon inquiry of people living in the vicinity, I was told that mosquitoes were plentiful and very annoying. I also learned that numerous cases of malaria had occurred in this locality. This case proves conclusively that estivo-autumnal malaria may originate in this city, and also shows how important it is to trace out the source of infection in malarial cases. By the careful use of kerosene in the wells, which are evidently the source of the mosquitoes, it is not too much to believe that malarial fever may be entirely eradicated in the locality spoken of.

Post-mortem Findings in Latent and Masked Malaria:—

Of the 219 cases of latent and masked malaria, five proved fatal from the diseases which complicated them. Three cases of masked malaria died from chronic dysentery, as well as two cases in which the infection was latent. All of the cases showed estivo-autumnal parasites in the blood.

In a future communication I shall give in detail the gross and microscopical pathology of these cases, at the present time only touching upon the conditions found.

In the cases of masked malaria, the liver, spleen, and brain showed marked pigmentation, and upon microscopical examination showed all the conditions of malarial infection. The capillaries of the brain contained numerous estivo-autumnal parasites.

much pigment, and numerous pigmented leucocytes. This was also true of the capillaries of the liver. Sections of the spleen showed large numbers of hyaline and young pigmented forms of the estivo-autumnal parasites, a few crescents, many pigmented leucocytes and an immense amount of free pigment.

In the two cases in which the malarial infection was latent, the chief pathological changes were found in the spleen and liver. Both organs were much pigmented, the spleen being considerably enlarged. Sections of the liver showed considerable free pigment within the capillaries, but no malarial parasites. Sections of the spleen showed an immense amount of pigment, numerous pigmented leucocytes, and comparatively few hyaline and pigmented parasites. No crescents were observed in the sections of the spleen. The condition of the section of the spleen, as compared with those in which the malarial infection was masked, seemed to be one simply of degree, the masked infections showing a much greater pigmentation and many more parasites than the latent infections.

These cases, especially those which were latent, are of great interest, as the pathological conditions found prove that the evolution of the malarial parasite may go on within the spleen and other internal organs without the production of definite clinical symptoms.

Conclusion. From the brief analysis which I have given of these cases of latent and masked malarial fever, it will be seen at once how important an examination of the blood is in all cases of disease originating in the Tropics, or in localities which are known to be malarious. It is an undoubted fact that a malarial infection complicating any disease process invariably injures the patient's chances of recovery, and its elimination, as proven by numerous cases observed at this Hospital, greatly facilitates recovery. Not only is this so, but cases have been observed in which the discovery of the malarial infection undoubtedly saved the patient's life. The discovery of the cases of estivo-autumnal malaria is especially important, as it is this form of the disease that may become at any time pernicious; and may cause death within a few hours.

Widal Tests: There were 63 Widal tests performed during the year, of which 41 were positive. An investigation was carried on as to the etiology of these cases of typhoid, as it was thought that some of them might have originated in the camps at the Presidio. It was found, however, after thorough investigation, that they were all contracted at other ports throughout the United States or in the Philippine Islands, and that none of the cases of typhoid sent to this Hospital have originated at the Presidio.

The use of the Widal test as a diagnostic measure in typhoid fever I believe to be of the utmost value. Since beginning its use in the Army I have performed over 5000 tests, and in only four cases has it proven confusing. These cases did not present the clinical symptoms of typhoid fever, and as they all recovered I cannot say positively whether or no typhoid was present. In 25 cases of the 5000 examinations, the Widal test was positive in other diseases, but in none of these cases could a clear history be obtained as to whether the patient had previously suffered from typhoid fever or not. As I have seen numerous instances in which the Widal reaction was present for from two to five years after the occurrence of typhoid, it is at once evident that some of these cases may have had typhoid fever previously. I believe, if the test is carefully and properly performed, that the possibility of error is so minute as to be of no practical importance.

Malta Fever Test: There have been 14 tests made in this Hospital during the year, for Malta fever by the agglutination reaction, of which four were positive. On account of the interest pertaining to the occurrence of this disease in soldiers of the U.S. Army, I have reported these cases fully, together with the literature upon the subject in the special report on Malta Fever published in the last JOURNAL.

GUNSHOT WOUNDS OF THE URETER—TWO CASES OF URETERO-VESICAL ANASTOMOSIS.

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GUNSHOT wounds of the ureter are so exceedingly rare that I feel it to be my duty to report the case which fell under my care. In the history of surgery, so far as I have been able to ascertain, there has been recorded only one authenticated case of gunshot wound of the ureter, and that was the case of the archbishop of Paris who was shot June 29, 1848. The ball entered the right lumbar region close to the spine. There was great depression, pale, anxious countenance, nausea, vomiting, intense pain in back and in the course of the sciatic nerves and paralysis of the lower limbs. Urine flowed from the wound in great quantities and there was none in the bladder. An attempt to remove the ball was made without success and death occurred 18 hours after the injury. A necropsy showed that the ball had passed through the third lumbar vertebra dividing the cauda equina just below its origin and the left ureter close to the pelvis of the kidney and lodged in the psoas muscle.

The doubtful case of Rayer reported by Hennen seems to have been a gunshot wound of the kidney. My case was as follows:

C. T., colored male; aged 30 years, laborer, was admitted to the Emergency Hospital on account of an abdominal fistula which had followed a gunshot wound of the abdomen received October 3, 1903. The ball, a .32, entered about one inch to the inner side of the right anterior superior spinous process of the ilium and just below Ponpart's ligament and lodged under the skin behind in the median line having perforated or notched the fourth bone of the sacrum—whence it was removed.

A purulent discharge with symptoms of peritonitis followed and on October 11, my colleague, Dr. W. P. Carr, suspecting

perforation of the bladder or bowel did an exploratory laparotomy in the median line. Numerous adhesions were found but no wound of the abdominal viscera. The wound was closed with drainage in front, and in a week there was a purulent discharge in front through the opening for drainage and behind at the point of exit of the bullet, so, daily, through and through irrigation was used. The patient gradually improved, the discharge became thinner and looked almost as clear as water. On examination it was found to contain a little pus and a trace of urea. December 3, 1903, the patient was discharged recovered with the exception of the fistula in front.

He was readmitted March 15, 1904, for the purpose of getting cured of the fistula, which had continued to discharge since leaving the hospital and kept his clothing constantly wet. A slight discharge also came from the posterior wound. The patient suffered no pain, ate and slept well, was well nourished and able to work. He voided from the bladder about 22 oz. of urine in 24 hours and from the fistula, judging from the amount collected for several hours, by means of a tube, in the fistula, 2 oz. an hour or 48 oz. in 24 hours.

Examination of urine from the bladder gave the following results: reaction, acid, specific gravity 1022, urea 6 grains to the oz., no albumin or sugar—a few pus cells. Fluid from the fistula appeared thin and slightly milky in color, reaction faintly acid, specific gravity 1010, urea 1 grain to the oz, pus cells abundant, a trace of albumin present. A probe could be passed into the fistula in front to the depth of $4\frac{3}{4}$ inches when it was arrested by a hard body, probably bone. Through the posterior opening the probe could be inserted to a distance of a little over 2 inches.

A diagnosis of wound of the right ureter was made and on March 19 the patient was operated on. The abdomen was opened along the outer border of the right rectus muscle and afterward the rectus was divided transversely just below the navel. The probe inserted through the anterior fistula was used as a guide but the operation was tedious and difficult on account of the numerous and strong adhesions of the intestines with one another and with the pelvic walls. The right ureter was finally exposed. It was found dilated to at least twice its normal size and was traced into a mass of unusually dense adhesions in the bottom of the pelvis. In attempting to free the ureter it was broken off at the location of the fistula as was shown by the appearance of the proximal end.

Nature was making a brave attempt to close the fistula, and incidentally the ureter itself, as at the site of the fistula the ureter

was much contracted in calibre—being not larger than one fourth or one fifth of the dilated portion above. The result of this contraction was not only dilatation of the ureter but also probable damage to the kidney, as shown by the small percentage of urea found in the urine from the fistula. Sewing together the ends of the ureter (uretero-ureteral anastomosis) would have been almost impossible even if desirable, at this point, so uretero-vesical anastomosis was decided upon. The bladder was opened in front and a small oblique opening was made through its posterior wall on the right side at a point considerably above the normal opening of the ureter. The end of the ureter was then split into 2 flaps about $\frac{1}{8}$ of an inch long and drawn into the bladder by means of forceps introduced through the anterior and posterior openings. The flaps were spread open and stitched to the inside of the bladder by sutures whose knots were tied on the peritoneal surface of the bladder. The ureter was also sewed to the posterior surface of the bladder at its point of entrance. Very fine silk sutures were used. The anterior wound in the bladder was closed by two rows of continuous sutures—using first, catgut through all the coats, and second, silk, omitting the mucous coat and inverting the first row. The ends of the rectus muscle were united with heavy catgut, the longitudinal wound was closed with through and through silkworm gut interrupted sutures and continuous catgut for the peritoneum and sheath of the rectus. No drainage for the peritoneal cavity but a small piece of gauze was left projecting from the space in front of the bladder. A catheter was kept in the urethra several days to prevent distention of the bladder, but there was slight escape of urine from the anterior wound for a few days. The patient was discharged recovered April 19. The urine was measured several times before the patient was discharged and was variable—running from 32 to 84 ounces in the 24 hours. April 17 Dr. F. R. Hagner reported as the result of the cystoscopic examination that the bladder mucosa was normal. The new opening of the right ureter was seen as a small papillary mass from which urine flowed. A catheter was inserted into the normal opening of the right ureter for about $1\frac{1}{2}$ inches beyond which it would not go. The scar in the front wall of the bladder was smooth.

The patient was again seen June 15, about 3 months after the operation when he appeared to be in perfect health.

Case 2. Cancer of the Rectum—Inguinal Colostomy—Later Excision of Rectum and Part of Colon—Right Ureter Divided—Uretero-vesical Anastomosis.

Mrs. E. T., white female, aged 47 years; was operated on

June 8, 1903, an inguinal colostomy being done on the left side, on account of ulceration of the rectum which had existed about a year and resisted all treatment. The patient's health improved after this operation and she gained in weight but continued to discharge pus and blood, so it was decided to remove the diseased rectum. March 14, 1904 this was done through the posterior wall of the vagina, but the disease was found to extend so high up the bowel that the abdomen had to be opened and all the rectum from just above the sphincter up to and including a portion of the sigmoid flexure was removed. In doing this the right ureter was accidentally severed near the bladder. The proximal end was split and sewed into the bladder exactly as in the former case.

There was no leakage so far as known either from ureter or bladder, and the patient made a good recovery and was discharged April 29, 1904.

Conservative surgery of the ureter may be said to date from the year 1877, when the first uretero-vesical anastomosis was done by Tauffer (*Deutsche medicinische Wochenschrift* 1877, No. 37, page 438). Previous to that time division of the ureter was usually treated by removal of the corresponding kidney, and even as late as 1893 we find Hermann Thompson stating that complete cure in lesions of the ureter is to be obtained only by removal of the kidney. He condemns grafting into the bladder or intestine as methods not to be recommended. Yet in the same year, sixteen years after Tauffer's case, we find the second successful uretero-vesical anastomosis done by Novaro.

The next year, 1894, F. Westermarck performed the operation under the impression that his was the first successful case in the human being. Since then the enormous increase in the amount of abdominal and especially pelvic surgery has provided numerous occasions for the operation, so that by 1903, Bovee had collected 111 cases of uretero-vesical anastomosis with 7 deaths.

This operation is indicated whenever the lower part of the ureter has been divided or resected and the proximal end is long enough to reach the bladder. I believe it is to be preferred to any of the methods of uretero-ureteral union which have been suggested or practiced for the following reasons given by Baldy:

(1) It is much easier to perform; (2) it is less likely to be followed by stricture, and (3) in case a stricture does form it is more accessible and easier to treat.

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SOME FEATURES OF THE IMMEDIATE TREATMENT AND TRANSPORT OF THE WOUNDED IN NAVAL WARFARE.

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THE types of wounds sustained in military operations at sea are so radically different from the types of wounds inflicted in military operations on shore that the preparations for the treatment of the one class of injuries will be found quite inadequate for the treatment of wounds of the other class.

In the field over ninety per cent of the wounds are caused by bullets of high velocity, small caliber and great penetrating powers but withal surgically humane in their effects. These wounds tend to do well under almost any treatment, while with the skillful use of the first aid dressing, and the let well enough alone plan, seeming miracles have been brought about.

On the other hand in naval warfare over ninety per cent of the wounds are inflicted by shell fragments of varying sizes, shapes and velocities. These shell fragments are at times so hot as to add burning effects to their other destructive tendencies. I cannot call to mind a single shell wound treated by us on board the Ambulance Ship Solace, off Santiago, Cuba, which was not infected. These wounds are lacerated and contused and are oftentimes of enormous extent owing to the jagged and irregular outlines of the missiles inflicting them. It is not surprising that they are so commonly infected when we consider the extent of contused and lacerated surface exposed to contaminating influences. These wounds must heal by granulation, and, in consequence, are likely to become infected during treatment. The shell wounds on the Solace were all second-hand wounds, and were infected before coming to that ship.

Many shell fragments lodge, while others carry everything before them in their flight. The direct wounds of the head and

trunk are pretty generally immediately fatal, while the glancing wounds of the head, trunk and extremities, though often extensive may offer us some chance for recovery. The shock in these cases is often profound.

In many navies the men are supplied with the small first aid packets of the army pattern, which are practically useless in the treatment of shell wounds of any extent.

There are guns on some of our ships so placed that their crews must remain beyond the reach of the medical officers and their assistants during an entire engagement, and the wounded at these points will have to be looked after by their comrades where they fall. What can we do for the wounded in these situations? What sort of immediate treatment is indicated? It is the wounded in these inaccessible parts of the ship that I have had in mind in planning the somewhat crude method of treatment I am about to describe, feeling that if it proves to be efficacious under these unfavorable conditions, it will be equally effective elsewhere. The conditions under which we must treat our men during and after a sea fight are such as to preclude the possibility of giving them the sort of treatment they would and should receive at other times. No one would think of allowing men to lie about the decks ordinarily. I wish it to be understood that my plan of treatment is for battle conditions alone.

The enlisted men of the gun's crews can be taught to render efficient help to their fallen comrades, and when they are made to realize that it is to this sort of assistance that they must turn in their hour of trial, they will take hold of the drills with interest and enthusiasm.

Fortunately shell wounds rarely induce troublesome hemorrhage still there is always considerable ooze from extensive wounds of any sort. To protect these wounds from infection they should be dressed as soon after they are incurred as possible, where the men fall and by their comrades. In my opinion the first aid on the firing line must come from the nearby comrade and so it is with gun's crew remotely placed on board ship.

The indications for treatment are the following:

1. Hemostasis and the prevention of infection.

2. The immobilization of wounded parts and broken bones, —which assists in,—

3. The treatment of shock.

Of hemostasis there is little to be said as the men are usually fairly well drilled in its details. They and many surgeons err however on the side of carrying their hemorrhage checking manipulations too far. Tourniquets are necessary in extremely rare cases, but are very commonly employed at the show of a little blood that would cease flowing if the part were freed of constrictions, were elevated and the wound subjected to the moderate pressure of a snug dressing. The tourniquet may be a source of grave danger. The dressing must not be too snugly applied in the hemorrhage checking efforts. After the battle of Santiago I had to remove the arm of a Spaniard at the shoulder-joint for gangrene following a dressing too tightly applied by a Spanish surgeon in his efforts to check the ooze of a shell wound near the elbow-joint.

To prevent infection I have devised a dressing which I have called a shell wound packet. This can be made on board ship, sterilized there, and is only to be prepared in quantities when likely to be needed in actual warfare. At other times the hospital corps men should be drilled in making and using the dressing, and in turn the ship's company can be instructed in its application. Some blood may ooze through the applied packet still this dressing should protect the wound from infection. It is to be replaced by a permanent dressing at the earliest opportunity.

The medical department of ships should be liberally supplied with No. 16 galvanized iron wire gauze in the rolls of the shops, cotton and unbleached muslin. The shell wound packets are made as follows: a piece of the wire is shaped into a parallelogram 8 inches by 6; 4 feet of the gauze is cut off the roll, is folded lengthwise and is securely stitched to one 8 inch side of the wire form. The wire frame is filled with cotton in the form of a compress and the gauze is folded over it and is stitched to the frame for security. The remainder of the fold of gauze, still attached, is snugly wound about the rigid compress. A piece of unbleached muslin 4 feet long, and 9 inches wide is then stitched to the free

end of the gauze and it, too, is made to encircle the form. Its free end is nicked with the scissors at several points so that the whole dressing may be easily secured by splitting and tying the muslin. Three safety pins fix the muslin at the sides and end.

A convenient disposition of these packets, after baking them just short of charring, is to place a dozen of them in a muslin bag with a purse string arrangement at its opening and to subject the bag with its contents to a baking as well. These bags of packets should be hung up out of the way but near the guns ready for use.

* The points in favor of this type of packet are: cheapness; ease of application to the trunk, head and extremities; that it can be readily made on board ship; will keep its shape when applied to deep wounds and will not infold and buckle; will afford protection to extensive wounds and can be applied and secured by a novice. It can be made to encircle the trunk twice.

The wire gives the packet form, prevents it from infolding, permits it to be shaped to a part and very greatly simplifies the making of the dressing and its application. The muslin adds materially to the protection afforded the wound, gives support and serves the purposes of a many tailed bandage.

The immobilization of broken bones and otherwise injured parts. This can best be effected by the use of sand-bags. Sand-bags in surgery are almost as old as surgery itself but sand-bags to splint broken bones where the men fight the guns, is as far as I know a new application of a seasoned measure. The bags, which are best made of heavy unbleached muslin or light canvas, and not too well filled, should be at least two feet long,—longer than the femur,—and five inches in diameter. They should be baked thoroughly at least once. The sand-bags can be manufactured on board ship, or better the empty bags could be made a part of the equipment of the medical department to be filled as needed. They should be hung up or stowed near the guns before going into action.

The treatment of shock in accessible parts of the ship will be restricted to stimulants, liquid food and water. Dilute aromatic spirits of ammonia is the stimulant I would recommend.

Splinting broken bones, in severe injuries, materially shortens the period of shock.

Before going into action all hands should bathe if possible, should put on clean outer garments and underclothes, and should leave off all unnecessary articles of clothing.

Let us see what we have provided for the wounded thus far. Should one of our men receive a wound of the thigh involving the femur, a shell wound packet will be promptly applied by a nearby comrade, the man carefully carried to a point out of the way of the rest of the gun's crew, there to lie on deck with his thigh between sand-bags until the action is over. Stimulants and other liquids will be given him as needed.



Applying the Shell Wound Packet.



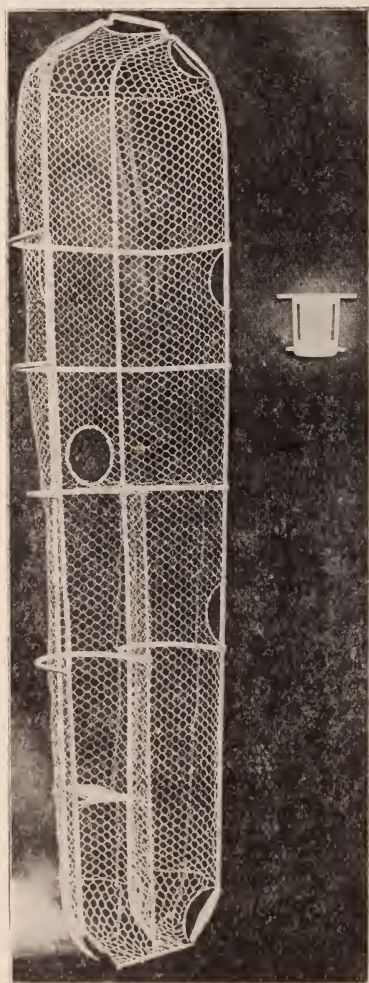
Shell Wound Packet Applied.

It appears to me that we shall be doing a lot for our men in these difficult situations if we succeed in carrying out this plan of treatment.

The transport of the wounded to the surgeons' dressing and operating stations has engaged the attention of military surgeons the world over and since writing this paper I have learned that Suzuki, a Japanese surgeon, has stated that in his opinion the ideal naval stretcher has yet to be devised.

If we were given our choice of splints for temporary use in a case of compound frac-

ture of the leg we should probably select a posterior wire mesh splint especially if the injury were near the knee-joint. Should



The Splint Stretcher showing foot piece.
The axillary and pelvic bands not shown.

we have a thigh to deal with, we would aim to fix the hip, knee and foot, and to support the fragments. The device, which I have called the splint stretcher, and now show you, will meet all of these indications, and while in it the patient can be up-ended, carried on side, or slid about decks and down ladders with comfort and security. Parts already splinted can be further secured in it as well. The pliable mesh can be shaped into the injured part and there fixed by bandages passed through the mesh at any point, or through chains conveniently placed for the purpose.

In this apparatus the wounded should be carried to the surgeon's operating quarters, there to be transferred to hammocks spread on deck. At this point the sandbags should again be employed for immobilizing the parts while the wounded are awaiting treatment of a more permanent nature at the hands of the surgeon. The medical

officers at this time will in all probability be overwhelmed with work, and time and labor saving devices such as skillfully administered spinal anesthesia will be greatly in demand.

If there are many wounded the surgeons will be short handed, and asepsis will be next to impossible. Anything beyond the checking of hemorrhage, the prevention of septic infection, the splinting of fractures for transport, and the treatment of shock, is positively contraindicated in the presence of a hospital ship. No matter how well trained and how well equipped the surgeons may be, it is practically impossible for them to do more than what I have designated and to do it well. The surroundings in a fighting ship after a battle are not conducive to painstaking careful surgical work. The ship, too, should be cleared of wounded as promptly as is consistent with their safety and welfare, as she may again be called upon to engage in battle.

When there is no hospital ship at hand of course the case is quite different. The conditions must be met as best they can. The new battleships are provided with well equipped operating rooms but these will scarcely be equal to the demands of a big battle; still they will be of inestimable value, and in peace times will be instrumental in saving many lives.

Practically all the surgical work done on board the fighting ships off Santiago had to be done over again on board the *Solace*. A properly equipped hospital ship should be and can be made as complete in every detail as the best equipped hospital on shore. The surgical work should be done there, where the surroundings conduce to asepsis. There was no pus on the *Solace* except in the cases of the shell wounds, which had been handled before they came on board with an energy more active than commendable.

The transfer of the wounded to the hospital ships should be accomplished by the drilled crew of that ship. The hospital ships should be equipped with the necessary transferring apparatus and all the required accessories. The medical officers of that ship, with their boats, and transferring devices, are the counterpart of the ambulance parties in the field.

The transfer will have to be accomplished in one of two ways; first, by small boats; second, by means of a trolley scheme direct from ship to ship. The hospital ships should be amply equipped with powerful steam launches and large seaworthy

boats provided with canopies for the protection of the wounded and built with flush decks, or platforms, below the rail.

The wounded that are able to walk should leave the ship in the ordinary ship's boats, while some of the stretcher cases should be placed in the boats provided with canopied platforms to be towed to the hospital ship by steam launches.

While assisting in planning the equipment of the Ambulance Ship *Solace*, before the war with Spain, I fully appreciated the tediousness and difficulties incident to a transfer of wounded from one ship to another by means of small boats. Let us consider the time required to put say 12 men over the side, on ordinary litters, by means of the usual ship's equipment. It will average nearly five minutes to a man, which means that it will take nearly an hour to get 12 men into boats alongside, and practically as long to tow them to the hospital ship and get them aboard.

To supplement the method of using boats and to expedite the transfer, in April 1898, I devised an apparatus which consists roughly of a steel hawser made fast to the fighting ship, a weight let over the side of the hospital ship sufficiently in excess of the weight of the hawser, the patient and the transferring car, to keep the line taut and clear of the water while effecting the transfer. This type of apparatus can be used in any seaway in which the guns can be fought, and the ships, while the transfer is being accomplished, lie dead in the water. The splint stretcher can be used as a transferring car. This apparatus differs from all coaling devices that I have seen and suits the purpose better than any that I know of. The type of coaling device which is in favor at present is one, in which, the transferring line is kept taut by means of sea anchors, and automatic winchies, while the fighting ship tows the collier at a moderate speed. There are many objections to this form of apparatus as adapted to the transfer of the wounded; among them may be mentioned the fact that the fighting ship must get under way after a battle, and that, while under way, the transfer by small boats cannot be effected. The apparatus is complicated and expensive.

Some time after the digest of this paper was transmitted to the Secretary of the Association for publication, and at about the

time of its publication, there appeared in the British Medical Journal a paper by S. Suzuki, Deputy Inspector General, Imperial Japanese Navy, Senior Medical officer with Admiral Togo. Dr. Suzuki's paper deals with the size of the first aid packet, and strongly urges that warships are not suitable places for the practice of surgical procedures beyond the preparation of the patients for transport to hospital ships. He says that the ideal litter for ship's use has yet to be devised. I feel that we have approached it in the splint stretcher. I regret that splinting with sand-bags has not been given a trial under the conditions of war, for I believe it to be an ideal method of temporary splinting, one that can be satisfactorily employed by a novice in surgery, and one destined to relieve pain, in many cases, and thus aid in the recovery from shock.

DISCUSSION.

MAJOR L. L. SEAMAN: I merely wish to compliment the essayist upon his excellent paper, and to say that it is a serious proposition to sling or transfer wounded over the side of a ship. However, the Japanese have to some extent solved this problem in their hospital ships by having a large port near the water line. Every one of their ships is constructed in this manner and it is open almost to the water line. They do not not let the wounded down, but they pass them out through this port. It is an immense advantage when ships are loaded with only wounded.

ASST. SURG. GEN. GEO. TULLY VAUGHAN, P.H. & M.H.S.: I simply wish to say a few words in regard to the splint which has been shown. I also want to congratulate Surgeon Stokes on the first aid bandage he has devised for shell wounds. I have had no experience with shell wounds, but I have had a good many wounds in civil practice where the injuries were very similar to those made by shells. In regard to the splint, I have no doubt this is the best splint for handling the wounded on board ship that has been devised. However, that is for my friends of the navy to decide—this is only my opinion. I think it also has a useful field in civil life. A man placed in that splint may, with a fracture of the femur, with the bandages properly applied, be moved or suspended anywhere with perfect comfort. What is usually used for the transportation of men with fracture of the femur is the old cloth or canvas litter with long side splint and a certain amount of pain is inevitable but by means of the splint here shown I believe that feature would be done away with. It might be a little difficult to get the patient out of the splint, and I would like to ask the inventor if it could not be arranged with hinges so it might be opened and closed again without injuring its efficiency.

SURGEON H. G. BEYER, U.S.N.: I am very glad that Dr. Stokes has brought up this question of first aid to the injured on board ship and moving them about until they arrive on the hospital ship. Until we have sufficient experience, which can be gained by experimentation on board of almost any ship, until we have sufficient experience in moving our sick and wounded from one ship to another, from the fighting ship to the hospital ship, I do not think we have done the best thing for the injured in war so far as preparedness is concerned. This is a very vital point. We should have concise methods and objects and conceptions of what we are going to do when we have a ship full of wounded. I do not think, according to my experience, that we have anything fixed at all or made any great observations or experiments on that very subject, and yet it is one of the first things we would be called upon to do in actual warfare. As Dr. Stokes has very well said, I do not think that during a fight a battleship can be considered as anything else, and from a medical point of view the only thing that can be done is to attend to first aid, treat the wounds aseptically, attend to the hemorrhage and assist in getting them as quickly as possible on board the hospital ship. I think experimentation on this suggestion as regards the trolley method for transportation from the battle ship to the hospital ship is an idea worth following up by practical test and drills approaching the conditions prevailing during war.

LIEUT. COL. JOHN V. R. HOFF, U.S.A.: One point suggests itself as I look at the Stokes splint litter, the possibility that it might take up too much room on board ship where every inch counts, and the suggestion of Dr. Vaughan that it be hinged or made to nest in some way (which the inventor has provided for) might be of advantage. As a ship litter it seems an ideal conception, but it would not be suitable for field service.

MAJ. S. C. MILLIGAN, N.G. Pa.: I believe it would be benefited by being made about half as deep as it is now. I believe it could be handled better and the men could be lifted in and out more easily.

THE PRESIDENT: I simply want to remark that this matter has engaged my attention for some time, very particularly the method of transferring the wounded. The need of carrying wounded men through circuitous passages, and varying angles, when the means of communication are extremely difficult and the necessity for something more practical, has brought about the construction of this device. I have not had experience with this splint, but the suggestion in regard to the space it occupies is a very important one. We take, for instance, an ordinary cruiser having a broadside of six guns, I feel that a half dozen of these splints would be necessary for the transportation of the wounded. What I like about this is that you can carry a man perpendicularly, or horizontally, and he is immobile, and that is a very material point, and in that respect it is the best device I have yet seen. The fact that it is made from material that does not splinter is important. I have always deprecated the possibility of suspending the wounded in action,

and I think most men have given up the idea that such a thing is a possibility. A very important point is how to send the wounded up and down the hatches, I think this device can be easily handled by a man above and below. These are the most important features presented to my mind in regard to this splint.

SURGEON CHARLES F. STOKES, U.S.N.: In regard to using side ports in getting wounded men from the fighting ship to the hospital ship, that is only possible in quiet water. At sea small boats could not approach near enough: we would have to put the men over the side. Any scheme of hinges I have been able to get hold of would weaken the device (the splint stretcher), and that would affect one of its most important points which is rigidity. This is the smallest one of the splint stretchers; they nest perfectly so that the height of the three is about two or two and one-half inches higher, and about two inches longer than the one that is shown here. They are arranged in sets of three, so three of them occupy about as much space as three or four stretchers would. The cost is \$20 each where a number are ordered made. The Kny-Scheerer Company has made mine for me. They are expensive, but they have to be made of good material and properly made, otherwise they are worthless. In regard to the question of depth, I have found it of advantage in affording protection and a sense of security to the wounded—which are very important matters,—and it does not add materially to the space. It affords protection to the man in taking him down ladders, through hatches and narrow passage ways.

LIEUT. COL. HÖFF: How do you get them up?

SURGEON-STOKES: The same as we get them up from an ordinary stretcher. I have thought of putting in a temporary device of unbleached muslin to be used as a sling to lift an injured part in and out with. A man can be treated in this stretcher, the injured parts can be dressed, and the irrigations will go right through. In my opinion the splint stretchers are particularly adapted to the treatment and transport of the seriously wounded in the field. A compound fracture can be treated in this apparatus from the firing line to the base hospital, in ambulances, trains, and hospital ships. The makeshift litters and improvised splints are, as a rule, surgical barbarisms.

THE ARMY MEDICAL SERVICE OF RUSSIA.

By COLONEL FRANK HOWARD, M.D.,

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THE Secretary of the Association of Military Surgeons of the United States having requested me to write a paper on the above service, I am glad to place at the disposal of the members of my profession such information as I possess on this subject; but before doing so I desire to state that my object is to be to amplify the somewhat abbreviated details on the Russian Army medical arrangements contained in my "Hand-book on the Medical Organizations (chiefly for war) of Foreign Armies," rather than to rewrite the information that appears therein.

The Russian Army Medical Service although organized on much the same principles as the medical services of other great military powers differs from them in the essential respect that the direction of the sanitary service is maintained subdivisionally in two parallel branches—that is to say the military authority not only considers the army medical officer as an auxillary who, ought always to be subordinate to it, but yet denies him every administrative quality, and employs him only as a sanitary expert. The medical inquiry which followed the war in the Balkans seems to have taken place with the systematic exclusion of medical men from the administrative questions raised, and to have caused disappointment as their counsels were not always listened to especially in the rear zone distant from directing authority, and the often painful results of an incompetent hospital administration were attributed by their authors to medical officers whose advice they neglected.

RECRUITMENT.

Before being appointed a surgeon in the Army a medical student must have finished his studies in medicine, surgery and

the other sciences at one of the seven universities of Moscow, St. Petersburg, Juriev (Dorpat), Kiev, Kharkov, Kazan or Helsingfors or at the Military Medical Academy of St. Petersburg. At the end he may pass two examinations—the surgeon's or the physician's. The former gives him the 9th class of the "tchin" or, "chin" i.e. the general hierarchy of the Empire, the latter the 8th, and the latter is necessary before he has free right of practice in the Empire, or before he can be promoted in the Army. All civil practitioners belong to the reserve with liability to call for service in time of war up to the limits of age imposed by the law of military service.

CLASSIFICATION OF MEDICAL OFFICERS.

The medical officials of the Russian Army have no military rank whatever, being classed as civil officials of the War Ministry. They are given rank in the "Chin" according to the positions which they hold, but may hold a position a grade higher than that attributed to their rank, and are generally shortly given the necessary rank. The pay, however, is given according to the position held. With the consent of his superiors, a medical official can hold other appointments besides his military one, even under other ministries.

PAY.

The total varies, within the following limits, in francs:

Sub-Lieutenant.....	1,900 to 2,425
Lieutenant.....	2,100 to 2,585
Captain.....	3,000 to 4,425
Major.....	7,000 to 9,175
Colonel.....	11,000 to 12,535
General of Brigade (Brigadier General).....	12,000 to 13,865
General of Division.....	17,000 to 20,000

Rank.	Pay in Roubles.	Table money in Roubles.
Surg. Gen. of the Army.....	846	498
Corps Surg. of Guard Corps	663	369
Corps Surgeon.....	570	276
Division Surgeon.....	507	222
Senior Surgeon.....	414	165
Junior Surgeon.....	333	129

The allowances are much the same as for officers.

RETIREMENT.

The retirement of Lieutenants takes place at 53 years of age; Captains at 55; Majors at 58; medical men of a higher grade, not inspectors, at 60. The pension of retirement amounts, after 20 years service, to the half of the pay of the preceding grade, and after 30 years, to the total, independently of a certain sum paid by a special retirement bank (fund) to which medical officers contribute six per cent. of their emoluments.

Medical officials belong to the following ranks of the "Chin": 3d or 4th class, Surgeon Generals of the Army, and Director of the Medical Department of the War Ministry, correspond to Major General or Lieutenant General and carry the title of "Actual State Councillor" or "Privy Councillor," with the predicate of "Excellency and the title of nobility. 4th and 5th class, Corps Surgeon of the Guard Corps, principal Surgeons of military educational establishments and of hospitals of the 4th class, correspond to rank of Major General and carry titles of "State Councillor" or "Actual State Councillor." Those of the 4th class have the predicate of Excellency and are ennobled. 5th or 6th class, Corps Surgeons and principal Surgeons of hospitals of the 2nd or 3rd class, correspond to rank of Colonel, and carry titles of "College Councillor" or "State Councillor." 6th or 7th class, Divisional Surgeons, principal surgeons of hospitals of the 1st class, and assistants to principal Surgeons of those of the 3rd and 4th class, correspond to rank of Lieutenant Colonel or Colonel and carry titles of "Court Councillor" or "College Councillor." 7th or 8th class, Senior Surgeons with Units, and senior ordinators in hospitals, correspond to rank of Lieutenant Colonel and carry titles of "College Assessor" or "Court Councillor." 9th class, Junior Surgeons with Units, and junior ordinators in hospitals, corresponds to rank of Captain, and carries title of "Titular Councillor" Promoted after four years to the 8th class. In official documents when a medical officer is designated the indication of rank in the "Chin" is always given, *e. g.* "The medical officer of division, of the 9th division, College Councillor Doctor X." Another medical officer although filling the same post can

have in the "Chin" a higher rank and be entitled "State Councilor, Doctor Z."

REGIMENTAL MEDICAL OFFICIALS.

A regiment of Infantry in Russia consists of 4 battalions, of 4 companies each. Its establishment is as given on page 142 of my Handbook (JOURNAL, page 325) except that 1 Junior Surgeon is given instead of 4 as stated. The various units of the army are provided with medical officials permanently attached to them on the following scale: One Senior Surgeon for the regiment, and one Junior Surgeon for each battalion in an infantry regiment. One Senior and one Junior Surgeon for an independent battalion. One Senior and one Junior Surgeon for a cavalry regiment, and one Senior and one Junior Surgeon for an artillery brigade. The Senior Surgeon is responsible for the proper performance of the medical service of the entire regiment. With the permission of the regimental commander he visits the men's quarters, inspects the men, and prescribes all hygienic and other measures as are necessary owing to climate, etc. The Senior Surgeon has under his orders the battalion surgeons, dressers, apothecary assistants, hospital sergeants and hospital orderlies. He is subject in all matters of duty, etc., to the regimental commanding officer, but in exclusively medical matters to the divisional surgeon. His powers are equal to those of a battalion commander. The Junior Surgeons in a regiment are only attached to battalions when those are detached; at other times they remain on the regimental staff at the disposal of the Senior Surgeon.

SUBORDINATE MEDICAL PERSONNEL.

Consists of dressers and hospital sergeants, who have the rank and privileges of under officers, and of hospital orderlies. They are derived from two sources, the dressers' school, and from soldiers who have been trained in the various medical establishments. There are dresser schools at St. Petersburg, Moscow and Kiev, whose pupils, who must first have passed through a progymnasium (middle class school), are put through a three years course of training and then pass an examination. Their practical

training is afterwards completed in the military hospitals. They are appointed as dressers to units. The soldiers who are trained in the medical establishments must first have served at least one year in the ranks, and are then appointed dresser pupils, and a thorough course of instruction for three years in a hospital; specially proficient men are permitted to pass their examination as dresser at the end of their second year. They are then appointed dressers, either in the actual army or, more usually, in the reserve. Dressers are divided into senior dressers, junior dressers, apothecary dressers, company (squadron or battery) dressers, and dresser pupils. For the regimental and other hospitals there are provided in addition, hospital sergeants (overseers or heads of wards), and hospital orderlies (ward servants).

The following is the distribution of the subordinate personnel to the principal units:—Infantry regiment, 1 senior and 1 apothecary dresser, 4 dresser pupils (distributed as required), 1 hospital sergeant, and 3 hospital orderlies on the regimental staff; 1 junior dresser per battalion and 1 dresser for every two companies. Independent battalion, 1 senior, 1 junior, and 4 company dressers, 4 dresser pupils, 1 hospital sergeant and two hospital orderlies. Cavalry regiment, 1 senior, 1 junior and 1 apothecary dresser, 1 hospital sergeant, and 2 hospital orderlies on the regimental staff, and 1 dresser and 1 dresser pupil per squadron. Artillery brigade, 2 senior, 6 junior and 1 apothecary dressers and 1 hospital sergeant on the brigade staff; 1 junior dresser for two batteries, and 1 dresser pupil and 1 hospital orderly for a battery.

MEDICAL ESTABLISHMENTS.

Comprise regimental hospitals, permanent military hospitals, local hospitals, special hospitals, and medical store depots. All units have in their possession the necessary material and rooms for the formation of a regimental hospital on the following scale:—Infantry regiment 16 beds; independent battalion 4 beds; cavalry regiment (2 per squadron) 12 beds; field battery 2 beds; horse battery 3 beds; sapper battalion 4 beds; pontoon battalion 3 beds.

These hospitals are formed in peace, either on the order of the unit commander, where there may be no hospital in the place

where the unit is stationed, or by order of the principal surgeon of the district when the other hospitals may be full. All units have always reception rooms for rendering first aid to the sick, equipped with 4 beds for an infantry battalion, 2 beds for a squadron, 2 beds for a field battery, and 3 beds for a horse battery. Certain regiments of the guard have their own hospitals with the following establishment of beds:—Finland regiment 200 beds; Moscow 125; horse guards 100. The senior surgeon of the unit is the medical, and the commander of the unit the military chief of the medical establishments belonging to the regiment. Soldiers of other regiments, and, in special cases, soldiers of the reserve, may be treated in these hospitals.

PERMANENT MILITARY HOSPITALS.

I have not alluded to these hospitals in my Handbook. These permanent or stationary hospitals are divided, in Russia, into four classes and are distributed amongst the various districts. Hospitals of the 1st class contain 5 beds for officers, and 150 for non-commissioned ranks, with a reserve of two for the former and 50 for the latter. Hospitals of the 2nd class contain 10 beds for officers, and 300 for non-commissioned ranks, with a reserve of 5 for the former and at least 100 for the latter. Hospitals of the 3rd class contain 33 beds for officers and 500 for non-commissioned ranks, with a reserve of 15 beds for officers and 150 for other ranks. Finally, hospitals, of the 4th class contain 38 beds for officers and at least 800 for non-commissioned officers and men, with a reserve of 20 beds for officers and at least 300 for the non-commissioned ranks. In some of the permanent hospitals there are special wards with female attendants for the wives and families of soldiers. If it becomes necessary to have a medical establishment of less than 150 beds, either a half hospital or a section is formed; the former when its distance from the nearest permanent hospital is so great that a special administration is necessary, the latter when the administration can be carried out by a permanent hospital. The following table gives the personnel of the hospitals of the four classes:

	1st Class	2nd Class	3rd Class	4th Class
Commandant	1	1	1	1
Medical Staff:				
Principal Surgeon.....	1	1	1	1
Consulting Physicians.....	0	0	2	2
Other Surgeons.....	3	6	7	15
Apothecary.....	1	1	1	1
Other Officials.....	1	1	3	3
Medical Dressers.....	6	10	15	26
Apothecary's Assistants.....	2	3	5	7
Administrative Staff:				
Superintendent.....	1	1	1	1
Officer in Disciplinary Charge	0	0	0	1
Stewards	1	1	2	3
Bookkeepers.....	1	1	1	1
Head Clerk.....	0	0	0	1
Clerks.....	6	8	10	12
Chaplain	0	1	1	1
Sacristan.....	0	1	1	1
Ward Service:				
Sergeant Major.....	1	1	1	1
N. C. O. in charge of clothing of sick.....	1	1	1	1
Quartermaster Sergeant.....	1	1	1	1
N. C. O. in charge of laundry	1	1	1	1
Watchman.....	0	0	0	1
Heads of wards.....	2	4	6	11
Ward Servants.....	14	27	43	72
Cooks, orderlies, servants, fa- tigue men.....	50	70	88	132

The commandant is responsible for discipline and the maintenance of order in the hospital. The principal surgeon superintends the medical treatment of patients, sanitary duties and everything relating to the care of the sick, the surgeons, apothecaries and dressers employed in the hospitals carrying out his orders. The principal surgeon only in exceptional cases prescribes; he, however, takes part in all consultations and superintends the surgeons in the performance of their duties. A sanitary committee attends to the financial matters, and is comprised of all the surgeons and officials belonging to the hospital. The principal surgeon is president of it. It audits all accounts, and has authority to make purchases to the amount of 100 roubles. Purchases amounting to 500 roubles can be made only with the consent of the Inspector General of the hospital, who is either the military chief of the government or a General of the garrison. The hos-

pitals are divided into wards according to the nature of the maladies of the inmates. The Senior Surgeon of each ward is called the ordinator and is personally responsible for the proper treatment and care of the sick under his charge. A dispensary is attached to each garrison hospital. During the summer months the sick are placed in tents or huts to allow of the hospitals being thoroughly cleaned and ventilated. The nursing service is carried out either by hired nurses or by men told off by the officer in command of local troops. On the 1st October 1893 the number of permanent hospitals was 16 in Europe, 6 in the Caucasus, and 6 in Asia.

LOCAL HOSPITALS.

These exist in places where only reserve or local troops are stationed and may contain up to 350 beds. On the 1st October 1893 there were 71 of them in Europe, 28 in the Caucasus, and 68 in Asia. Their organization is similar to that of the permanent hospitals and their establishment as follows:

	50 beds to 350 beds.	
Principal Surgeon.....	1	1
Other Surgeons.....	1	to 6
Head Apothecary.....	0	to 1
Assistant Apothecaries.....	1	to 3
Dressers.....	2	to 8
Hospital Steward.....	1	1
Clerks.....	2	to 5
Wardmasters.....	2	to 7
Cooks, Bakers, etc.....	3	to 15
Ward Servants.....	1	to 8 sick
Drivers, according to number of vehicles.		

In addition to the above there are asylums for military lunatics at St. Petersburg, Moscow, Warsaw and Kiev, a military clinical hospital at St. Petersburg, the Michael Clinical Infirmary at St. Petersburg, and the Chesma and Ismailov military almshouses.

MEDICAL STORE DEPOTS.

The dispensaries of military hospitals receive supplies of medical stores, bandages etc. from these depôts. The central one is at St. Petersburg, and local ones are established at Bobruisk, Kiev, Brest-Litovsk, Moscow, Kazan, Kremenichug, Tashkend,

Omsk, Irkutsk, Khabarovka, Tiflis, and Stavropol, each of which has a small staff of apothecaries, surgical instrument makers, dressers, and clerks. Surgical instruments are supplied to all these from a government manufactory at St. Petersburg. At Tiflis there is a medical laboratory where experiments are conducted and medical officers are instructed in hygiene.

THE WAR MINISTRY.

The Medical Department forms one of the several departments of the establishment of the War Ministry. The Surgeon Inspector General has an assistant, 2 medical officers for special duties, and a consulting professor for eye diseases. The following are the sections and personnel:--Chancery 4 officials; 1st section, 1 surgeon as chief, 5 surgeons or officials, heads of sub-sections, 3 officials; 2nd section, 1 surgeon as chief, 2 surgeons, heads of sub-sections, 2 officials; 3rd section, 1 surgeon as chief, 3 chief officials, 7 officials; mobilization branch, 2 surgeons, 1 official; sanitary statistical branch, 1 surgeon, 3 officials, and lastly, subordinate personnel, 1 official, 42 clerks, 6 dressers, 2 apothecary dressers, 4 couriers.

The summary of the medical establishment (according to returns in November 1893) of the war ministry may be placed approximately as 59 officials, and 54 N.C.O's. and men (non-combatants). The veterinary service was comprised in the medical establishment; but in virtue of an order of November 19, 1902, this service ceases to be placed under military medical authority from this year and becomes directed at the ministry by a veterinary chief Inspector of a new division of veterinary medicine; in the military districts by a district veterinary surgeon, and in the Army Corps by a veterinary officer of the Army Corps.

The army medical department of the war ministry is the highest medical and sanitary authority and has entire control over the personnel. A Scientific Medical Committee is attached to this department.

To each army corps and division staffs is attached a corps or divisional surgeon. The army corps surgeon has supreme charge of all medical arrangements in the corps. He is placed under the direct orders of the Army Corps Commander, and, for purely

medical matters, of the medical inspector of the district. His powers over the medical personnel are equal to those of an officer commanding a brigade. Similarly the medical responsibility passes on to the surgeons of divisions and brigades under their commanders.

Having thus given at some length a survey of the peace arrangements I pass on to the the Medical Service in the Field.

MEDICAL SERVICE IN THE FIELD.

The medical formations in the field are given in my handbook of the "Medical Organizations of Foreign Armies;" the chapter on Russia having been already reprinted in the the October number of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES it therefore only remains to give somewhat fuller information regarding the duties of the several ranks.

The chief of the medical service with an army in the field is the Adjutant General of that army who exercises his functions as regards the medical and sanitary service through three subordinate heads of departments, viz., the Inspector of Field Hospitals, the Medical Inspector, and the Plenipotentiary of the Red Cross. A Major General is appointed as Inspector of Field Hospitals of the army whose functions comprise the inspection of all permanent and temporary hospitals. His staff comprises 9 officials, 9 clerks, 1 private for general duties, 15 servants, (3 for the inspector, 2 for each of the higher officials, 1 for each of the rest), 1 transport under officer and 5 drivers with 4 2-horse wagons (3 for baggage, 1 for clerks) and 10 horses (1 spare, 1 riding). A reserve of officials calculated at 5 per cent of the total number on the establishment is attached to this department. The Inspector of Field Hospitals' authority although extending over all the hospitals of the army both permanent and temporary does not exist over the sanitary establishment belonging to the troops, except the mobile hospitals attached to divisions when they are occupied by sick or wounded and cannot follow their divisions. He supervises the supply to all medical establishments of the hospital stores, instruments, and personnel required by them. A reserve of medical officers is placed at his disposal, and the chief of all local hospitals and the committees for the evacuation of the

sick are under his orders. He keeps up constant communication with the Medical Inspector of the army, the Plenipotentiary of the Red Cross Society for matters concerning the participation of this society in the case of sick and wounded, the chiefs of the lines of communication and road departments for the organization of the transport of the wounded, and the intendant of the army for the supply of provisions, etc., to medical establishments from the intendance magazines. He submits to the Adjutant General detailed plans for the measures to be taken to enlarge permanent hospitals, to provide extra mobile and reserve field hospitals, to distribute mobile hospitals and to provide hospital stores and supplies, to replenish or augment the personnel or form sanitary stations, detachments of weakly men, lines of communication hospitals or sanitary and sick trains on the railway, and finally measures for the evacuation of the sick and wounded in general, carrying those measures into execution after approval.

THE MEDICAL INSPECTOR OF THE ARMY.

The Field Medical Inspector of the army, an official of the 4th class of the "Chin," is allowed a staff of a chief surgeon, the surgeon attached for duty to army head quarters, 3 surgeons for special duties, 1 apothecary, 3 office officials, 4 dressers, 1 apothecary dresser, 8 clerks, 1 private for general duty, 22 servants, 1 transport under officer, and 11 drivers attached with 9 carriages (3 2-horsed wagons for baggage, and 2 for clerks and dressers, 2 1-horsed carts for apothecaries' stores, etc., 1 2-horsed wagon for medical stores, and 1 4-horsed ambulance) and 21 horses (1 riding, two spare) a reserve of 10 per cent of surgeons, 2 per cent of apothecaries and 5 per cent of dressers of the whole number on the establishment is provided and placed at the disposal of the Field Medical Inspector. His duties are to superintend all sanitary and medical-police measures for the preservation of the health of the troops, to watch over the treatment of the sick and wounded, and see that a proper selection is made of cases for evacuation, to take measures for the supply of medical stores to all medical establishments, and to supervise the medical personnel of the army. Under his orders are the Surgeon General of the Army, the surgeon in executive charge of army headquarters, and a reserve of medical personnel. The medical

inspectors of military districts of the theatre of war and the chief surgeons of corps are under his direction, although he does not interfere with the details of their work, and the field dispensaries are moved and distributed by him. He maintains close relations with the medical department at head quarters (Home), and refers to it all the measures he has taken, all the requirements of the medical service, and the sanitary conditions of the troops. He keeps up communication with the Inspector of Hospitals for affairs connected with the interior economy of the hospitals, with the Plenipotentiary of the Red Cross Society for matters concerning the medical activity of that Society, and with the medical inspectors of military districts for the treatment of the sick sent to the rear. He furnishes the Adjutant General with detailed statements of the requirements in stores, the special sanitary measures to be taken, and the selection of sick and wounded, from a medical point of view, for evacuation.

THE PLENIPOTENTIARY OF THE RED CROSS.

This personage is under the Adjutant General. No special staff is allowed for him, and his baggage is provided by the society. He has at his disposal all the resources in personnel, material, and money supplied by the Red Cross Society for the assistance of the sick and wounded in war. He keeps up close communication with the Inspector of Hospitals and the Medical Inspector and receives from them information as to how he can best offer assistance. He inspects all the establishments belonging to the Society, reporting as to their condition and contents to the Adjutant General, and informs the headquarters of the society at home of further requirements.

THE CHIEF SURGEON OF AN ARMY CORPS.

This medical officer is the adviser on sanitary matters of the corps commander, and takes all measures to preserve the health of the troops. He supervises the supply of medical etc. stores to medical establishments of the Corps and the disposal of medical stores that may be captured from the enemy. Before an action he takes measures for the concentration at dressing stations of a sufficiency of personnel and stores, and supervises their working and the removal of the sick to the hospitals designated for that purpose. He directs the operations of such portions of the Red Cross Society's establishments as are attached to the corps, and has

the right of transferring medical personnel or establishments from one unit to another if necessary.

CHIEF SURGEON OF A DIVISION.

This medical officer is the immediate head of all medical establishments attached to that division. While directly under the orders of the divisional commander, he carries out, in medical matters, the direction of the Chief Surgeon of the Corps. He selects the points at which Field Hospitals are to be located, and ensures their being emptied and made available again as soon as possible. He supervises the medical personnel, and takes measures to keep its personnel complete, frequently inspecting the hospitals and their accounts and books.

REGIMENTAL MEDICAL ARRANGEMENT.

The following tables, obtained from official and other sources will be found useful. Tables I and II from our own offices in 1902. III and IV from a source given at the heading.

TABLE I.

SURGEONS, DRESSERS, AMBULANCES, MEDICAL COMFORTS	In a horse battery or light rifle so called battery.....					
	In a Foot Artillery Brigade...	In a Cavalry Regt. (6 squad.) or Cossack Regt. 6 Sotnias.	In an Independent Rifle Bat- talion	In a Rifle Regiment of 2 bat- talions.....	In an Infantry Regiment of 4 Battalions.....	
Surgeons.....	1	2	2	2	3	5
Dressers.....	2	7	9	6	11	22
Ambulances, 4 horse, each for 5 men, 4 lying, 1 sitting or 8 sitting.....	...	3	...	1	2	4
Ambulances, 2 horse, each for 2 lying or 4 sitt'g	1	...	2	...	...	...
Apothecary's 1 horse 2 wheel.....	1	2	1	1	2	4
Wagon, 2 horse, with stretchers, etc., for wound- ed too bad for bearers or stretchers.....	...	...	...	1	1	1
Sanitary, 2 wheel.....	...	1	...	...	...	...
Stretchers with mattresses for carrying wounded	2	12	6	8	16	32
Bearers; 4 for every litter except in Artillery Brigades, where there are 3 per stretcher, a gunner is told off for the fourth.....	6	36	24	32	64	128
<i>Medical Comforts.</i>						
Preserved Meats (rations).....	...	30	30	20	40	80
Preserved Soup (ration).....	...	30	30	20	40	80
Besides cranberry jam, tea, sugar, wine, spirits, &c						

TABLE II.

ESTABLISHMENTS:	Division'l Hospital	Brigade Hospital, Rifle Brigade.	Field Mobile Hos- pital.	Field Reserve Hos- pital.	Sanitary Transport	Fortress Tempo- rary Hospital.
Surgeons.....	5	4	4	4	2	7
Dressers.....	5	5	9	9	4	16
Hospital Attendants.....	22	14	65	65	19	127
Sisters of Mercy.....	...	...	4	4	2	8
Bearer Company, 17 N. C. O. and 200 men.....	217	...	...	...	...	...
Bearer Command, 11 N. C. O. and 130 men.....	...	141	...	...	...	...
Ambulances for 4 lying, 1 sitting, or 8 sitting...	8	...	1	...	27	...
Pair horse ambulance.....	...	8	...	...	...	...
Pairs of tents for two.....	15	15	19	...	7	...
Hospital 2 bed tents.....	3	2	4	...	1	...
Tents for four.....	1	...	1	...	1	...
Stretchers with mattresses.....	50	40	40	2	...	...
Big tents.....	4	...	3	1	1	...
Small tents.....	...	5	...	...	...	...
Portions preserved meat or rations.....	400	384	...	384	400	...

TABLE III.

Tables III. and IV. are taken from an article by Principal Medical Officer, 1st Class, Professor F. Antony (Val de Grâce) in the "Archives de Medecine et de Pharmacie Militaire for February, 1903.

	Feldschers	Hosp. Orderlies	Stretch. B'rs	Beds in Hosp
	Peace—War	Peace—War	Peace—War	
Infantry Regt. 22.....22	4.....7	64.....128	84	
Batl. of Schultzen 6..... 6	3.....3	16..... 32	28	
Cavalry Regiment 9..... 9	3.....3	24..... 48	30	
Brig. of Artillery 7..... 7	1.....1	24..... 48	48	

According to the gravity of their condition sick soldiers are cared for in rest rooms, in infirmaries (okolotki), in in troop hospitals, or in permanent hospitals.

PERSONNEL AND MATERIEL OF THE SANITARY SERVICE
AT THE FRONT.

OFFICERS AND TITLES.		Regt. of Infantry, 4 Battalions.	Regt. of Cavalry, 6 Squadrons.	Brigade of Artillery 6 Batt's of 8 guns	Divisional Lazaret	Mobile Hospital	Sanitary Convoy
Officers.....	...	...	...	...	2	1	1
Medical Officers.....	5	2	2	5	4	4	2
Employees (clerks).....	...	...	...	...	4	4	1
Feldschers.....	22	6	7	5	9	4	4
Hospital Orderlies.....	7	...	1	22	65	19	...
Stretcher Bearers.....	128	24	36	217	...	...	...
Train Servants.....	...	...	...	40	33	73	...
Stretchers	32	6	12	50	40	...	...
Tents (20 men).....	...	...	...	4	3	1	...
Wheeled Transport {	For Wounded.....	4	2	3	8	...	27
	Pharmacy	4	1	2	3	4	1
	Adminitstration.....	1	1	1	18	25	8
Horses.....	...	...	...	82	67	137	...
Rations	80	30	30	200	200	384	...

To sum up the general organization of the Army in the Field we may say that it is divided into a certain number of armies under the commanders of armies (*Komanduyuschii Armii*). Directly under the chief of the staff of the Army are the three departments of the (a) Quarter Master General of the Army (b) Adjutant General of the Army and (c) General of Communications of the Army; and directly under the Commander of the Army are the departments of the (a) Intendant of the Army (b) Inspector of Artillery of the Army (c) Inspector of Engineers of the Army (d) Chief Field Paymaster (e) Chief Field Controller. The foregoing are the eight principal departments, but there are also the following secondary departments and officers or officials. Under the Chief of the Staff the Chancery of the Staff of the Army. Under the Adjutant General, (a) the Field Hospital Administration, (b) the Field Medical Administration, (c) the Plenipotentiary of the Red Cross Society, (d) the Judge

Advocate General of the Army, (e) the Commandant at Head Quarters, (f) the Chaplain General at Head Quarters.

Under the General of Communications are the Department of the Lines of Communication, the Road Department, the Postal and Telegraph Department, and the Transport Department.

RED CROSS.

So many articles have recently appeared in medical and foreign Journals on the Red Cross Society of Russia, its resources etc. etc. that it seems needless to say anything on this subject here.

SANITARY CHANCERY.

A few lines will be sufficient to deal with this section of the army in the field. It is under a Colonel and is divided into two (a) the sanitary and (b) the evacuation sections at the head of each of which is an official with another as assistant. For general duty there are also 2 officials, 1 surgeon and 8 clerks. The sanitary section attends to measures for preserving the health of the troops, and to the composition, distribution, and supply of the medical units and establishments; the evacuation section to the measures to be taken for the evacuation of sick and wounded.

In conclusion I have to offer my thanks to the Intelligence branch of our army for much help given to me, and I would strongly urge medical officers who desire to obtain a good grasp of the subject of Russian Army medical organization to read the supply book by Professor Theodore Maksheiff, an able article in the "*Archives de Médecine et de Pharmacie Militaire*" of February 1903, by Principal Medical Officer 1st Class, Frederic Antony, Professor at Val de Grâce; and also the Appendix, page 367, to Medico-Major Dr. José Gamero Gomez's translation of my Handbook on "*The Medical Organizations (chiefly for war) of Foreign Armies*" recently published at Madrid (*Imprenta de administracion militar* 1904).

EMERGENCY ENTEROSTOMY FOR BULLET WOUNDS.

A MEDICAL officer of Brabant's Horse (*Scottish M. & S. Jour.*) reports that, "After a tough fight, I discovered a wounded native crawling toward a pool of water near at hand. His wound was fearful. The abdomen was ripped open right across by a Snider bullet, his entrails protruding, one of the small intestines severed, the two ends trailing on the grass as he crawled along. My medicine chest, carried in my pocket, consisted of some pins and needles, white thread, a pair of sharp scissors and a two-bladed knife, one of the blades kept always very sharp. I turned the poor chap on his back, brought him water in my helmet, and began to do for him what I could. The puzzle was how to unite the severed intestine. Now, close at hand, growing out of the pool of water I spoke of, were a number of Spanish reeds. These reeds are a kind of exaggerated grass an inch in diameter when full grown, resembling the canoe in so far that there are 'knots' or joints every nine inches about. I chose one of these just coming out, and therefore quite soft and pulpy, half an inch in diameter; I cut a length two inches and a half with a 'knot' at the middle to keep it strong enough to bear fair pressure. With my sharp knife I fashioned it slanting inward, so as to enter the intestines easily; I carefully took the core out of the 'knot' and I had a tube of soft vegetable substance likely to bring my intended operation to a successful termination if recovery was at all possible. Going back to my patient, I inserted my tube in both the dis severed ends of the intestine, put in three stitches to keep them together, gathered all the bowels into the peritoneum, stitched it, stitched along the thick abdominal covering, and bidding my patient good luck I left him in charge of a native prisoner, whom I released for the purpose. Less than a month afterward, a stalwart, healthy-looking Kaffir appeared before me, bringing two fine cows which he wanted the 'Inkosi' to accept. This Kaffir was my patient, perfectly recovered, the only trace of the wound left being a long scar on the abdomen."

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BRIGADIER GENERAL JOHN MOORE,
SURGEON GENERAL, U. S. ARMY,—1886-1890.

Editorial Expression.

The Surgeon Generals of the United States Army.

XV. BRIGADIER GENERAL JOHN MOORE, SURGEON GENERAL OF THE UNITED STATES ARMY.

1886—1890.

DURING the latter days of the administration of Surgeon General Murray, the candidates for the succession had ample time to align their supporters and to organize their claims for consideration. The field for selection was broad and the number of applicants, including nearly all of the senior grades of the Medical Corps, was abundant. There was no lack of qualifications, as any one of the candidates would have honored the position. Major Huntingdon had served through two surgeon-generalcies as principal assistant and had edited with distinguished credit the last surgical volume of the Medical and Surgical History of the Rebellion. Colonel Baxter was the ranking officer in the Medical Department and had evinced a high degree of executive ability as chief of the supply department. Colonel Sutherland had the longest record of service in the corps and brought testimony of the highest character to the ability and efficiency of his service. Lieutenant Colonel John Moore while perhaps the least insistent of the applicants, had many years of distinguished service to his credit and was also politically of the same faith as the then president. It was however a surprise to the service, when, after an interim of three and a half months during which Colonel Baxter, as the senior officer of the Corps officiated as Acting Surgeon General, Lieutenant Colonel Moore was on the 18th of November, 1886, appointed Surgeon General.

General Moore was born in Bloomington, Indiana, August 16, 1826, and received his collegiate education at the Indiana State University. He attended lectures at the Medical School of Louisville in 1848-49, and at the Medical Department of New

York University in 1849-50, graduating in 1850. He was then appointed on the house staff of Bellevue Hospital where he served during the ensuing year.

In 1853 he appeared before the army examining board and, having been duly approved, was commissioned as an Assistant Surgeon in the army on June 29, 1853. His first station was at Fort Myers, Fla., where he remained until 1856 when he was ordered north for a year at Fort Independence, Mass. He then had the good fortune to be detailed to accompany the Utah Expedition of 1857 and remained on that duty for four years, in the meantime receiving his promotion, June 29, 1858, to the grade of Captain.

In pursuance of the policy to bring as many experienced officers east as possible in 1861, he was then assigned to duty at the Marine Hospital in Cincinnati where he remained until 1862, when, having been promoted to the grade of Major, he was detailed as Medical Director of the Central Grand Division of the Army of the Potomac. In 1863 he was transferred, as Medical Director, to the Department of the Tennessee, and in 1864 received the brevet of Lieutenant Colonel for gallant and meritorious service during the Atlantic campaign. In February 1865, he was appointed Colonel and Medical Director of Volunteers and served five months under that commission, receiving during the time the brevet of Colonel "for faithful and meritorious service during the War" and closing his war service in 1866 as Medical Director of the Department of the Mississippi.

During the years 1866 and 1867, he was post surgeon at Fort Wadsworth and Fort Columbus, New York Harbor, and 1868 and 1869 he passed upon examining and other board duty in New York City, whither he returned as attending surgeon in 1870, after a few months as Medical Director at the Headquarters of the 1st Military District, Richmond, Va. After four years in New York and a year as Medical Director of the Department of Texas, he availed himself of a long leave of absence to travel extensively in Europe. Then, after a few months on medical examining board duty in New York, he entered upon five years of service on the Pacific coast, first from 1881 to 1884 as Medical Director of the Department of the Columbia, and from 1884 to 1886, as

Medical Purveyor in San Francisco, having been promoted to the grade of Assistant Medical Purveyor with the rank of Lieutenant Colonel on October 8, 1883. In 1886, he was appointed, by President Cleveland, Surgeon General of the Army.

The administration of General Moore was marked by the greatest advances in Army medical work since the War of the Rebellion. During his first winter, instruction in first aid was inaugurated in the service, by direction of General Order No. 86, from the Headquarters of the Army, November 20, 1886.* No step more important to the welfare of troops had ever been taken than this and its future development proved to be of the greatest advantage in the next war. The first aid books of Captain Dietz, Colonel Smart and the writer resulted directly from this work.

In 1887, the Act organizing a Hospital Corps in the United States Army became a law. With all its crudities, defects and deficiencies this act was the most important medico-military legislation since the act of 1847 giving definite rank to medical officers. The organization of a corps of men whose work was to be confined to the Medical Department added immeasurably to the efficiency of the medical service, while the training of these men and the Company Bearers, provided by law in each company, troop and battery, added much to the labors of the medical officers.

The officers set to work enthusiastically to devise systems of drill, training and instruction. There could hardly be a question of priority in this work since so many were working on the sub-

*The Secretary of War being of the opinion that instruction by lecture or demonstration in the simpler practice of medicine and surgery may with advantage to all concerned be given by officers of the Medical Department stationed at military posts to other officers and the enlisted men serving thereat, directs that whenever practicable and where voluntary attendance in sufficient numbers can be secured, arrangements be made for a series of such lectures on the practical treatment of the unhidden disease, early aid to the injured, the most expeditious and proper manner of treating temporarily gunshot wounds, poisoned wounds, frost-bite, bruises, dislocations, hemorrhage, and fractures of bones; application of the tourniquet; the most approved method for resuscitation from drowning, and other kindred subjects.

Medical officers delivering these lectures will forward, not later than June 30, 1887, through the regular military channels, to this office, a report of the results, beneficial or otherwise, which may have attended them up to that date.

By command of Lieut. Gen. Sheridan.

R. C. DRUM, Adjutant General.

ject simultaneously. The writer's system of litter drill appeared early in 1888 and was soon followed by the official manual of Colonel Heizmann, other works on the subject by Colonels Hoff, Havard and Woodhull and Captain Dietz were issued soon thereafter, and in many directions the active interest of army medical officers became apparent.

In the conduct of his office General Moore was assisted by a remarkable triumvirate in the persons of Colonel Baxter and Majors Greenleaf and Smart and every phase of the work was managed with the highest efficiency. The last volume of the gigantic Medical and Surgical History of the Rebellion—the third medical volume—appeared during his administration under the editorship of Major Smart. The removal of the Surgeon General's office from the old Riggs Building, in which it had been located since the Civil War, to the spacious accommodations provided for it in the new State, War and Navy Department Building rendered it possible for the work to be better classified and organized.

General Moore was cordially received and sustained by the profession at large. This situation was very evident at a dinner given in 1887 by the New York Practitioners Society in honor of him and of the Surgeon General of the Navy. The attitude of the distinguished representatives of medicine gathered there, was a most gratifying indication of the interest felt by the best element of the profession in its military branch. Similarly the interest manifested in the military section of the Ninth International Medical Congress, held in Washington in 1887 was an evidence of the friendship of the civilian physician for his army compeer, and of the sentiment which prevailed throughout the country during General Moore's administration. He has been an Honorary Member of the Association of Military Surgeons of the United States since 1895.

General Moore, upon his retirement, in 1890 continued his residence in Washington where he still dwells (1904) in hale and hearty old age. He is of large, broad-shouldered frame and powerful physique, and, with fine soldierly bearing, attracts attention wherever he appears.

Current Literature.

THE SPANISH EDITION OF THE SANITARY ORGANIZATION OF FOREIGN ARMIES.*

THE valuable work of Colonel Howard upon the military medical organization of foreign armies now appears in a Spanish version, with the addition of a complete article upon the British service prepared by Colonel Frank Howard and with many other additions by Major Gamero, the translator. It forms a valuable work of reference on the subject and is fully up to date in all respects.

EDGAR'S OBSTETRICS.†

THIS superb work now appears in a second edition with such small revision as the high character of the first edition would permit. Among the added features may be mentioned a new section upon "The Toxemia of Pregnancy," while for the section of the first edition on "Fever in the Puerperium" a new section on "Morbidity in the Puerperium" has been substituted. Material improvements have been made in the illustrations, forty-five new ones having been added and all the colored plates having been remade, together with three new ones. The whole constitutes a most beautiful, instructive and elaborate work deserving of the highest recognition upon the part of the profession.

**Organización Sanitaria de los Ejércitos Extranjeros*, por el DR. FRANK HOWARD. Obra traducida directamente del Inglés y ampliada por el Dr. JOSÉ GAMERO GÓMEZ. Svo ; pp. 394. Madrid, Imprenta de Administración Militar, 1904.

†*The Practice of Obstetrics*. By J. CLIFTON EDGAR, M.D. *Second Edition, Revised*. Imp. 8vo, pp. 1153, with 1264 illustrations. Philadelphia, P. Blakiston's Son & Co., 1904.

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DETROIT, MICHIGAN,
SEPTEMBER 26, 27, 28, 1905.



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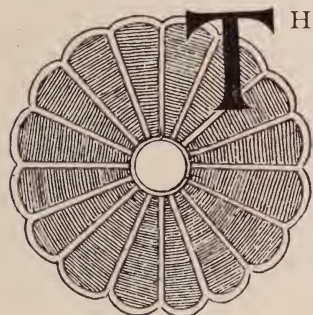
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Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

OBSERVATIONS IN THE RUSSO-JAPANESE WAR.

By MAJOR LOUIS LIVINGSTON SEAMAN,
LATE SURGEON IN THE UNITED STATES VOLUNTEER ENGINEERS.



THE letter of our Secretary requesting a paper for this meeting on the medical features of the Russo-Japanese War, was delayed in transit and arrived just as I was leaving Manchuria. In complying with that request, I beg to state that the following is submitted, not as a scientific digest of what has transpired, but merely as a narrative of some of my personal experiences, together with a few conclusions drawn largely from observation, in this and other wars. As a reference library does not form part of the kit of a war correspondent, or of a "Hunhutze raider," I trust you will overlook any minor inaccuracies.

The thousand objections raised by the governments of both belligerents against granting passes to the firing line, or giving permits to visit battle fields directly after a fight; and their refusal to impart statistical information are only a few of the many difficulties we encountered. Even when, in defiance of martial law, one seized a favorable opportunity to break away from the network of control, to pursue an independent investigation, he was confronted with the formidable objection of not understanding the Japanese, Russian, Korean or Chinese languages. Thus you see, the collection of scientific or statistical data, was no easy

task, and why the material in my possession will require further revision before it can be submitted for publication. Accompanied by my Assistant, Dr. Trautman of New York, I left Washington May 25 and arrived in Tokio June 20. Armed with strong credentials from the Japanese Minister, Mr. Takahira, to Mr. Chin-da, Secretary of foreign affairs in Tokio; also from our Secretary of State, our Surgeon General, and General Chaffee, we went at once to our legation, and then to the War Department, for the much coveted pass that was to take us to the front. During the inevitable delay following, we studied the splendid Red Cross system which has its headquarters in this beautiful Capital, and its University and Medical Schools, which since the Restoration (1868) have given to the world such men as Ito and Komura in diplomacy, Kitasato and Shiga in Bacteriology, Fukuzowa, in Education, Kikuchi in mathematics, Shimosa in chemistry, Tot-suka, Sato, Takamini, Saneyoshi, and Takeki in medicine, and others of international reputation. True, some of these men received their university education in German, English and American centres,—but they are now splendid exponents of their various specialties, and through their original investigations in forensic medicine and other scientific channels, are creating for themselves enviable places in the ranks of fame.

We found the Military, Red Cross and University Hospitals conducted on broad, up-to-date principles, the operating rooms being supplied and fitted up with the latest devices for antiseptic procedure. Fresh air is appreciated at its full value and liberal facilities are afforded for sunshine and outdoor recreation. The latrine system is somewhat antiquated (earth closets mostly) but this objection is overcome when one remembers the exquisite cleanliness for which the nation is so justly noted.

Up to July 1, only about 1100 wounded, and no medical cases had reached Tokio, mostly from the base hospital at Hiroshima, which was continually sending large numbers to other divisional hospitals to make room for fresh ones from the front. They were mainly from the Yalu, Nanshan and Telissu fights, and included many severely wounded by shell fragments, bullets, shrapnel, saber cuts and explosions. They come by rail

from Hiroshima to Shunbashi station where they are detrained and placed in rickishaws or on bamboo stretchers. The Japanese are an undemonstrative people. At the station, nearly every second day, or night one can see an almost silent crowd, dispassionately gazing on the growing lines of wounded, who return the stare with equal gravity. One would never imagine that standing in the stolid crowd, many have come to try and discover a relative or lover. Occasionally a mother or a sister will recog-



Hospital Wards at Matsuyama.

ize a son or a brother. Apparently no feeling is shown, only a cool formal greeting with a touch of reverence on the part of the woman,—the real welcome is reserved for the sacredness of home, and is a welcome of which the world knows nothing. The road from the station to the various hospitals lies sometimes through the busiest part of the city, but everywhere the slow impressive procession is met with a respectful silence till at last the hospital is reached, where with almost mechanical precision the patients are distributed; and so systematic are the arrangements that in a

few minutes nothing remains to indicate an interruption of the usual routine of the day. The little Red Cross nurses, smilingly perform their duties with a precision and celerity that commands admiration. We found the physical condition of the patients remarkable, considering the severity of their wounds and the character of the campaign through which they had passed. Their faces showed little evidences of illness or suffering; on the contrary the majority looked as well as their attendants, and their greatest anxiety seemed to be to know when they could rejoin their comrades in the field. When I tell you that of the more than a thousand wounded received in Tokio prior to July 1 not one had ended fatally, and that every one remaining in the wards presented a favorable prognosis, you can appreciate the admirable work that is being accomplished there.

It is the rule of the Japanese Surgeons at the front to do little or no operating except in cases of extreme emergency or where hemorrhage threatens immediate death. All cases are treated by the application of the First Aid dressing, and then sent to the rear as quickly as possible, thence by hospital boat or transport to the base hospitals in Japan. The Tokio surgeons are complaining of having so little to do; for by the time the wounded arrive, the vast majority of wounds have cicatrized by first intention, and further interference is unnecessary.

On July 1 our long delayed passes came, permitting us to visit all the Military and Naval Hospitals in Japan, and the Russian wounded and prisoners at Matsuyama. No time was lost in turning at once to Hiroshima on the beautiful Inland Sea, where the base Reserve Hospitals are located. These institutions comprise six divisions, in different parts of the city, each division having its own administrative building, behind which a long open hall way runs between ten corridor wards. Each ward is capable of accommodating fifty patients in ordinary times, but such is the elasticity of the hospital, that in the emergency of war 500 extra beds can find temporary space in each division. Fifteen Buddhist Temples have recently been requisitioned, to form an additional division, their beautiful and roomy interiors giving ample accommodation for another 1000 patients. Hundreds of

wounded arrive every few days from the fields around Port Arthur where terrific fighting has been in progress almost incessantly since July 15. Since August 26 (after which I made a second visit to Hiroshima) the execution has been at much closer range, and the severity of the wounds correspondingly increased.

High velocity bullets at such short distances produce an almost explosive effect, shattering osseous and lacerating muscular tissue far more than any previously brought from the front.

The operating room of the first Division Reserve Hospital is presided over by the distinguished Surgeon General Sato, and his able associates Colonel Ohuishi and Captain Tanaka. Here indeed was the surgery of the battle field, for gunshot casual-



Japanese surgeon and nurses treating Russian prisoner at the Matuyama hospital.

ties of nearly every conceivable type were continually arriving from the front. A detailed description of even a few of them would be impossible in the prescribed limits of this paper, but the careful systematic work of the attending surgeons and Red Cross and American nurses call for special commendation. One of the

features of the Hospital is the constant flooding of the floors of operating and dressing rooms with a solution of bichloride, to prevent dust or the development of bacteria.

Of the thousands of casualties here, photographs of some of which are before you, the most interesting from the Surgeon's standpoint were those of spurious and traumatic aneurism, of which I saw 26. These cases were comparatively rare before the introduction of the modern small bore metal jacketed bullet of high velocity, the theory of their causation being that they result from the initial energy imparted to the soft structures near the injured vessel (or to the vessel itself) at the instant of the impact of the bullet. This force or energy, *vis a tergo*, as it might be termed, lacerating and contusing the adjacent soft structures in its course, also injures the elastic layer of the arterial wall, so that, sometimes weeks after the original wounds of entrance and exit have healed, a small pulsating tumor is discovered, near the track of the bullet, which, distending gradually, soon becomes an aneurism requiring operative interference. Such a specimen is shown in the bottle before you. It resulted from a bullet passing through the middle third of the fore-arm nearly half an inch from the radial artery. The wall of the vessel was injured so that it lost its resisting power, and the aneurism gradually developed, three weeks later. Unfortunately, the sac, which at the time of removal was nearly an inch in diameter, has contracted in the preserving fluid, so its former size cannot be appreciated:

The ideal treatment adopted is to control the circulation, cut down upon the tumor, ligate the proximal and distal ends of the artery, and enucleate or dissect it out.

In traumatic aneurisms this method is rarely possible, owing to extensive blood extravasations, and the friability of the surrounding tissue more or less broken down by the distention caused by the presence of old blood clots. The muscles of the soldier are firm and tense, and contract or relax in their sheaths so easily, as often to occlude the small apertures made by the entrance and exit of the modern ball. If then, a small artery is cut along the track of the bullet; and the overlying muscles pre-

vent the escape of the resulting hemorrhage, a traumatic aneurism follows, whose size depends upon the calibre of the injured vessel, and the resistance of the surrounding tissue. Extensive extravasation may take place between the sheaths of muscles, as was the case in two instances I saw, where large coagula were turned out after incisions—and where in one case, amputation was necessary to control hemorrhage and save life. Pulsation of the tumor is rarely felt, owing to coagulation of the effused blood, or the small size of the affected vessel.

Another series of interesting cases of which there were numbers in the Hospital, were those in which the bullet had injured both a vein and an artery, or where *both* vessels had been simultaneously punctured, resulting in a direct or indirect connection of the vessels, or in other words—an arterio-venous communication. In one of the cases (when I was present at the operation) the radial artery was affected—an aneurismal sac had formed in which the bruit and pulsation were distinctly marked. Ligatures



Carotid Aneurism.—Reserve Hospital,
Hiroshima.

were applied to both ends of the artery, its sac and connecting link with a section of the vein carefully removed—and, as I learned afterwards, the patient had a rapid and satisfactory convalescence.

Instances I saw of bullets, passing directly through the great cavities—7 through the cranial, 9 through the thoracic, 8 through the abdominal, and so many through the extremities that their number was quite lost, cauterizing their course, and healing both

entrance and exit wounds by first intention after first aid dressings—were so numerous as to leave no doubt as to the asepsis of the modern ball when the lesion is uncomplicated. Of course supuration followed where balls ricocheted, carrying with them foreign matter, bits of clothing, dirt or splinters, but these instances were comparatively rare, and only served to emphasize the wisdom of the principle of non (operative) interference on the field, or afterwards, except under strict aseptic conditions; a principle the Japanese fully appreciate, and the adoption of which has saved many valuable lives.

Conspicuous by their absence were cases requiring operations for appendicitis, hernias, floating kidneys, choledectomies, etc., etc. Indeed, during the entire summer I have not seen a single hernia or a laparotomy. The Japanese soldier has been taught how to treat his intestines—and consequently his intestines are *now* treating him with equal consideration. His plain rational diet is digested—metabolized and assimilated. It is not an irritating indigestible fermenting mess—acting as a local irritant and producing gastritis, duodenitis, enteritis, colitis, hepatitis and the long list of inflammatory intestinal processes with which we were all so familiar in the hospital wards at Camp Alger, Chattanooga, Tampa, Cuba, Porto Rico, Montauk Point, etc. in 1898.

Indeed, the men here looked remarkably strong considering their trials—far more so than the wan, but courageous Tanaka who I saw again in September with an infected finger, and a temperature ranging above 100°, but who nevertheless was at that time doing his 10 to 12 capital operations a day.

As for the average Japanese soldier, he is either less sensitive or more of a stoic than the rest of humanity. On the entrance of a surgeon, if able to stand, he is instantly at "attention,"—if too ill,—he crosses his legs in his cot in the graceful pose of his Buddha, and remains in that attitude until the visit is over. I have seen many a long ward full of these victims of Russian shot and shell. sitting like rows of Buddhist statues, with the same immobile look of quiet restfulness—of peaceful contentment, that characterizes their great philosopher—recalling in more ways than one the great exponent of their faith; and in-

voluntarily it inspires a respect and admiration, not far from reverence, for these silent suffering men who never complain, but who do their duty, regardless whether the end be victory or oblivion.

Our next visit was to Ujina, the port of Hiroshima, where the Red Cross Hospital Ship *Hakuia-Maru* was preparing to leave on her sixth voyage to the front. Through the courtesy of her commander Captain Sekina and her administrative officer, M. Kikawa and the Medical Staff, we made a thorough inspection of the ship in every department. She has ample accommodations for 200 wounded—which in emergency can be increased to 300—and in every feature—even to operating room and room for radiography, she compares favorably with the best ships used for similar purposes by the English, German and American Armies.

Next we visited Kure, one of the naval bases; and thence, to Matsuyama, where the Russian prisoners, 1600 in number, were being entertained. I say entertained—for there was nothing about their surroundings to suggest the idea of a prison—and the men themselves (excepting the officers) seemed to be having the time of their lives. They were all from White Russia—mostly Finns and Poles with a decided sprinkling of the Children of Israel in evidence. Pondering on the recent monstrous atrocities at Kishinev, and beautiful Helsingfors, and the woes of these people in their own unhappy land, the thought occurred that His Imperial Majesty the Tzar of all the Russias was emulating, with emphasis, the illustrious example of David of old with Uriah, in sending these people as cannon-fodder to the Orient, where the more killed the better, for the safety of the throne at home. The officers were quartered in a magnificent Buddhist Temple in a wooded park, near a crystal lake where many-tailed gold fish sported under the lotus and the iris, and century old cryptomeriae cast their graceful shadows over the scene of beauty. The wounded also, of whom there were over 500, had commodious accommodations, and looked well fed and happy. At the conclusion of our visit the common soldiers shouted their familiar salute, as it is given to their officers,—and as I had often heard

it in years gone by in their camps in Port Arthur. The men are solid, thick set, well built fellows, capable of great physical endurance, heavier and but little taller than their Japanese antagonist—except the officers who are all large, handsome fellows, splendidly developed. The customary ration of the Russian soldiers consists of as much good hot broth or soup as they care to eat, made principally of vegetables with a few bones or a bit of meat thrown in; and a loaf of black rye bread, so hard and sour that one wonders how they can chew it, but the Japanese are feeding them more liberally, with fish, white bread, fruit and many added delicacies, and several of them, speaking in German, declared to me they hoped to be left in Japan forever.

From Matsuyama we proceeded to Shimonoseki, (historic from its association with the signing of the treaty of peace by the Viceroy of China, Li Hung Chang, and the Emperor of Japan, in 1895), to Sasebo, the invulnerable base of the Japanese Navy. This is a most picturesque and remarkable Port, 20 miles from the sea, so securely hidden among the mountains that no hostile fleet could ever hope to follow its tortuous channel of approach, without danger of utter annihilation. Its dry-docks are among the largest in the world, and its enormous arsenal, a perfect beehive of industry. Three hundred vessels of war,—transports, torpedo flotillae, destroyers, cruisers and battleships were gathered here at the outbreak of hostilities; and here too, on a shaded eminence, overlooking the harbor (which in beauty resembles a Swiss mountain lake) is the chief Naval Base Hospital, with Surgeon General K. Totsuka F.R.C.S. in charge. In times of peace, the ordinary staff of the Hospital, like that of the Kure Port Admiralty consists of six surgeons, a pharmacist, and thirty nurses, but in the emergency of war it can be increased as occasion demands.

The character of the cases found here differs widely from those in the Military Hospitals, being of a type distinctly more severe. This can better be appreciated when it is known that prior to the date of our visit—July 16—the total casualties in the Navy amounted to 1429, of which 1209 were fatalities. But such statistics are misleading unless it is remembered that over 500 of

these deaths occurred on the occasion of the torpedoing of the ill-fated battleship *Hatsuse*, and a large proportion of the remainder on the ships that were exploded or sunk in the futile attempts to blockade the narrow channel to Port Arthur. Less than 200 wounded had been rescued from these terrible tragedies and forwarded to Kure and Sasebo. In deed, 225 represents the total number of casualties thus far received at these institutions, and of these, only five have died. The remainder are rapidly convalescing, notwithstanding their terrible punishments.

Casualties in Naval warfare differ radically from those in land battles in that bullets are rarely a causative factor in one, whilst in the other they are the predominating cause.

Fragments of shell, ragged and twisted bits of metal and splinters, causing fearful lacerations, contusions, with compound and compound comminuted fractures, abrasions, burns from explosives, scalds from escaping steam, penetrating, or perforating wounds



Dressing Room in the Red Cross Hospital at Matsuyama.

Russian prisoner, Japanese surgeon and nurse

of the cranial, thoracic or abdominal cavities predominate here. These are all liberally represented in the wards at Sasebo; and, as at Hiroshima, the most approved methods of treatment are in vogue and with the most flattering results. But one patient in the entire hospital, presented an unfavorable prognosis, and he was suffering from tubercle, and had not been at the front. Many of the cases were those picked up by the torpedo boats after the terrible mine explosion under the Hatsuse, and those taken from the water after the sinking of the ships in the Port Arthur Channel—most of them had been blown from their ships, and rescued by the torpedo boats under a hail of fire, and with the greatest difficulty, in the conditions indicated in some of the photographs shown. The men all look vigorous and happy. They are gaining weight under their enforced idleness, and like their fellows in the other branch of the service, their first question is to learn when they may return to their posts of duty.

Surgeon General K. Totsuka, to whom I am indebted for many delightful courtesies, is a gentleman of rare ability and practical ideas. His chief assistant, Fleet Surgeon K. Habuto, through whose generosity you are permitted to see the photographs before you, and Dr. H. Sonobe are able seconds. One of the practical inventions of Surgeon General Totsuka, is the bamboo swinging stretcher used throughout the Japanese Navy. He kindly permitted me to purchase one from the Hospital Stores, which I shall have the pleasure of showing you later.

I have seen the effect of some of the famous Shimose powder. This compound is not used for killing, propulsion I mean, i.e. for loading cartridges—but for its *explosive* qualities in blowing up ships and in loading shells. As an evidence of its power of fragmentation, the case of a Russian blue-jacket may be cited. He was on the Cruiser Variag in the Chemulpo fight when a Shimose shell burst near him. An examination of his body disclosed the presence of 161 distinct wounds.

I have tried to tell you something of the surgery of the war, but no reference has yet been made to the Medical Wards of the great Hospitals. They are there—internal, contagious and infectious departments—their conspicuously empty beds voicing more

eloquently than words, the most important lesson of the war. A few cases of diseases of the respiratory system are found—colds, bronchitis, and an occasional pneumonia,—contracted through exposure in fording rivers, exhaustive marches, and bivouacking on wet ground; a few more of typhoid (I *saw* only three in Manchuria); occasionally one of dysentery,—indicating the constant presence of these dangerous germs in the fighting zone (where among the natives—Koreans and Chinese—no more provision is made for sanitation than in an ordinary farmers pig-pen); and a number of cases of Kakki—beriberi—that former scourge of Oriental armies. But of all the many thousands gathered in these institutions there were but a few *medical* cases—and of these scarcely a baker's dozen came under the heading of *diseases of the digestive system*. Therein lies the great secret of the Japanese success, Napoleon never made a more truthful statement than when he said: "An army fights on its belly." Yea, verily, and the Japanese have that belly, and they take good care to keep it in fighting order—not by insulting it three times a day by cramming it with material totally unsuited to the soldier's necessities, thereby exciting irritations and disease, but by supplying it with a plain, palatable easily prepared and easily digested ration that can be thoroughly metabolized and converted into the health and energy that makes its owner the ideal fighting machine of the world today. The ration used by the Navy leaves little to be desired. I have seen entire crews on those rolling porpoises of torpedo boats, after six months continuous duty, stronger and heavier than when they entered the service; when in our own Navy, or in that of Great Britain, an uninterrupted detail of this duration and character is considered about enough to put a man out of business.

Internal diseases are practically an insignificant factor in the Naval Hospitals, and up to July 20 not a single case of Kakki had developed. This excruciatingly painful disease, known in the literature of the Orient since the days of Confucius, was for centuries the dread of Oriental armies. Nor were the navies exempt, for as late as 1882, in a total force of 4769 in the Japanese service, 1929 suffered from Kakki, of whom 51 died. Elaborate

investigation was instituted by Dr. Takaki then Medical Director of the Admiralty, resulting in the establishment of the fact that Kakki or beriberi is a neurotic disorder resulting from a lack of nitrogenous nutrition—in other words, of nerve starvation. The ration was remedied, to supply the lacking elements, with the result of practically eliminating it from the diseases treated in the hospitals of the Admiralty. From 1886 to 1893 not a single case developed. But the Army is less fortunate than the Navy. Its ration is not so rich in nitrogen. Economy is a factor that had to be studied most carefully in Japan and so no variation was made in the old ration of the soldier. This proved satisfactory in time of peace, when the soldier was not bound to it so rigidly as when in foreign service, and even in the first six months of the present conflict it served its purpose, but the long unbroken marches, when for weeks men were reduced to two meals a day—the terrible fighting in one instance—with no interruption for seven days—during three of which a large part of the Army had almost nothing to eat, and but little to drink, the long nervous tension and deficient nutrition began to tell, and when I left Newchwang late in August, Kakki began showing itself in the ranks. It is to be hoped that the reported capture by Japanese of sufficient provisions at Liaoyang to last the entire army three years is true—in which event Kakki will soon disappear. If not, the sooner the authorities substitute barley or lentils for a portion of the rice allowance, and a little pemmican as formerly used by our own army; biltung, used by the Boers, or pea sausage as used by the Germans—and by Kitchener in his famous campaign to Khartoum—the better it will be for their welfare. These foods will supply necessary deficiencies and banish an enemy that is second only to the foe they are trouncing so beautifully in the field.

It may be here incidentally noted, that the ration table of the Japanese 'blue-jacket' contains a daily allowance of 3 oz. of liquor—saki—which, to quote from the report of Baron Saneyoshi, Director General of Medicine of the Imperial Japanese Navy, after "exposure to severe cold, or heavy rain, stimulates the action of the skin and is a great preventive against catching cold;

after severe labor recreates strength, and when the digestive power is dull during the hot season, and the heart gets weakened, is a stimulant. It also raises the spirits and gives hilarity when on lonely expeditions; and many other benefits can be obtained from the use of liquors. A small number of medical men consider that harm results from it, *i. e.* excessive radiation of bodily heat consequent on the dilatation of blood vessels of the skin, weakening of the resistive power of the body, neglect of work through drunkenness, and baneful effects on the digestive organs and the mind. From these ill effects we are pleased to say that none of our men suffered." During voyages in stormy weather, after rowing in rough water, coaling, fighting, and in severe cold below zero, and at the time of sentinel duty in the dead of winter, six ounces of saki, or one ounce of spirits, (rum or brandy) is officially given.) It can also be obtained in the canteen in limited quantity (6 ounces) under strict regulations. And yet Japan is a land of comparative temperance where I have never seen a man in the service or out of it, under the influence of liquor. Like every other army, in the world, except the Chinese and American, the Japanese have a well regulated army canteen where beer is dispensed under official supervision. This beverage is recognized as bread in solution, an excellent food, that has undergone fermentation thereby saving the stomach the unnecessary labor of acidulating it in the process of digestion. The officers regret that beer cannot be supplied to their men in Manchuria as a component of their daily ration, and in this, I believe, they are perfectly right.

The organization of the Medical Department of the Japanese Army and Navy is modeled after that of the Germans, with many added improvements. In the Army, Director General Koike, with his Associates, Dr. Hashimoto, Surgeon General at Tokio, Dr. Sato, Surgeon General at Hiroshima, and Dr. Kikushi, Surgeon General at Osaka, together with a Surgeon General with each of the three armies in the field, all have the rank and emoluments of Major General.

In the Navy, the Director General, Baron Saneyoshi, has the equivalent rank of Lieutenant General, whilst his principal as-

sociates, Dr. Totsuka, Surgeon General of the Sasebo Port Admiralty, and Dr. Suzuki, Surgeon General of the Kure Port Admiralty, rank as Major Generals.

All of these officers both in Army and Navy are of one or more grades higher than the highest possible rank attainable in our army, namely—our Surgeon General, who ranks only as a Brigadier General.

In peace time the headquarters medical personnel of each division consists of 1 principal surgeon, 2 surgeons and 9 medical subordinates. At the headquarters of each division is a well equipped garrison hospital, and local hospital arrangements are made at out stations, each hospital being provided with a suitable proportion of medical officers, apothecaries and medical subordinates. The Red Cross Society has a central Association in Tokio, with a branch in every "Ken" or prefecture. It is in a very flourishing condition, and its list of membership now includes over a million names. Its agents and nurses of whom there are thousands, are subject to military control, and work in perfect harmony with the medical department.

ORGANIZATION IN WAR.

In war time, to each mobilized Division is attached a medical detachment consisting of detachment staff, 2 sanitary (or bearer) companies, 6 field hospitals, with due proportion of riding and baggage horses.

In the Chinese campaign, 1900-01, the establishment of a field hospital was as follows:

- 1 chief medical officer.
- 5 medical officers.
- 1 apothecary.
- 9 N. C. officers, medical corps.
- 40 privates, medical corps.
- 1 cutler.
- 5 privates (infantry soldiers).

Transport Train.

- 1 senior driver.
- 1 N. C. officer driver.
- 40 men.

The composition of the bearer company at Peking was as under.

- 9 medical officers
- 1 apothecary officer.
- 1 pay officer.
- 14 N. C. officers.
- 1 pay N. C. officer.
- 26 trained men, hospital corps.

A company can nurse 100 sick, but a single company does not carry a complete set of stores, the organization for war being 2 companies, with a complete equipment for 200 sick.

Reserve Hospitals are established either in or out of military garrisons, for the reception of patients sent back from the field, as well as for those from regiments of the reserve and from the garrisons.

The establishment of a reserve hospital comprises:

- 1 surgeon-colonel, surgeon-lieutenant-colonel, or surgeon-major, as chief.
- 2 to 3 medical officers.
- 1 to 4 pharmacutists (officers).
- 1 commissariat officer.
- 3 to 5 chief attendants.
- 1 to 6 pharmacutists (N. C. officers).
- 2 to 8 commissariat N. C. officers or men.
- 30 to 40 attendants.
- 1 or 2 mechanics.

(a) If a sufficient number of medical and pharmaceutical officers be not available, their places may be filled by temporary civil medical practitioners and pharmacutists.

(b) Deficiencies in attendants and pharmacutists are to be made up by 1st or 2nd class reserve attendants (N.C. officers), or by temporary hired employes.

(c) The duties of all, excepting those of hospital chief, commissariat officer, and under officer, may be taken by members of benevolent societies.

(d) For every increase of 40 patients over 120, 1 medical officer, 1 chief attendant, and 10 to 13 attendants may be added.

(e) The chief of the hospital is subject to the commander of the territorial division.

Auxiliary Hospitals may be established when required.

Medical Service on line of Communications.—The medical staff of the line of communications consists of :

- 1 surgeon-lieutenant-colonel or surgeon-major, as chief.
- 1 surgeon-captain or surgeon-lieutenant.
- 1 pharmacist (only there is no reserve medical store).
- 1 N. C. officer.

Reserve Medical Personnel.—To each Division is attached medical *personnel*, organized at the time of mobilization, its duty being to serve in the stationary field hospitals.

Reserve medical *personnel* is named after the division to which it belongs. The establishment is as follows:—

- 1 surgeon-major, as chief.
- 2 surgeon-captains.
- 4 surgeon-lieutenants, 1st or 2nd.
- 1 pharmacist (officer).
- 1 commissariat officer.
- 14 chief attendants (N.C. officers).
- 40 attendants (N.C. officers).
- 3 pharmacists (N.C. officers).
- 9 servants.

The medical officers are, as far as possible, to be taken from the active list, and in case of deficiency in that, from the 1st or 2nd class reserve.

Stationary Field Hospitals.—A stationary field hospital is intended to receive patients from the field hospital, the place of which it takes, so that the latter can advance.

It is not to move with the fighting line like a field hospital, but is to receive patients at a fixed place, continuing its work until there is an opportunity of sending them back.

The chief of a stationary field hospital is a surgeon-major or surgeon-captain, and the strength of the *personnel* varies according to requirements.

Reserve Medical Store.—On mobilization, one reserve medical store is allotted to each Division, and named after the Division to which it belongs. The following is the establishment:

- 1 chief store master (lieutenant of train).
- 1 train N. C. officer.
- 6 train privates (2 shoeing smiths).
- 1 pharmacist (officer).
- 2 pharmacists (N. C. officers).
- 2 mechanics.
- 1 clerk.
- 2 servants.

The reserve medical store is located in a place convenient for the despatch of supplies to hospitals, etc., as a rule at the most advanced stations, or where there is railway or water communication.

If one portion of the army becomes detached, a reserve medical store is attached to it.

Transport of Patients.—On mobilization, a staff to arrange for the transport of patients is organized in each Division. It is named after the Division to which it belongs, and comprises:

- 1 major or captain, as chief
- 2 medical officers (surgeon-captains or surgeon-lieutenants).
- 1 chief attendant (N. C. officer).
- 2 attendants (N. C. officers).
- 1 clerk (N. C. officer).
- 2 orderlies.
- 3 servants.

As a rule, the transport staff is located at the most advanced station of the line of communications, or where there is either railway, ship, or other convenient means of transport, the existence of houses, etc., for the reception of patients being taken into consideration. On the advance of the fighting line, the transport staff also advances.

Field Hospitals.—The function of the field hospital is to receive the wounded from the dressing stations, or directly from the fighting line, and to transport them to the rear, gradually relieving the dressing stations, so as to enable the bearer company commander to advance or retire without hindrance.

Field hospitals are called by the names of their Divisions, counting from No. 1 to No. 6 in each Division. The *personnel* and equipment of each are so organized as to be divisible into two equal parts.

A field hospital should be as near as possible to the dressing station, easily seen, sheltered from the enemy's fire, and convenient for the transport of wounded.

Dressing Stations.—The dressing station is established near the fighting line, in such place as can be easily found by the soldiers, is out of the enemy's fire, convenient for the transport

of the wounded, and when possible in the vicinity of good water, and in hot weather in the shade.

Its function is to receive wounded men from the fighting line, and to permit of their being medically treated before transfer to the field hospital.

Hospital Ships and Transports.—These are used when suitable water communication is available.

Medical Organization of the different Arms of the Service.—The establishment of medical *personnel* with units is as follows.—

Infantry Regiment:—

- 2 surgeon-captains (one officer may be a surgeon-lieutenant-colonel or a surgeon-major).
- 4 surgeon-lieutenants.
- 3 chief attendants.
- 12 ordinary attendants.
- 48 reserve bearers (trained soldiers belonging to the regiment).

Cavalry Battalion:—

- 1 surgeon-captain (or surgeon-major).
- 1 surgeon-lieutenant.
- 1 chief attendant.
- 1 ordinary attendant.

Battalion of Artillery:—

- 1 surgeon-captain (or surgeon-major).
- 2 surgeon-lieutenants.
- 1 chief attendant.
- 2 ordinary attendants.

Battalion of Engineers:—

- 1 surgeon-captain (or surgeon-major).
- 1 surgeon-lieutenant.
- 1 chief attendant.
- 2 ordinary attendants.

Battalion of Train:—

- 1 surgeon-captain (or surgeon-major).
- 2 surgeon-lieutenants.
- 3 chief attendants.

Veterinary Department.—The officers of the veterinary service are recruited from students of the veterinary school. They are classed as non-combatants, but have a hierarchy of their own, the highest grade of which ranks with that of major.

Uniforms.—The uniform is of dark blue cloth with green facings.

Hospital Ships, of which there are two in the Navy, and 3 in the Army—each in charge of a large staff of highly trained surgeons and nurses,—are used when water communication is available. In great emergencies Transports are also pressed into the service.

Too much praise cannot be bestowed upon the Medical Departments of the Army and Navy for their splendid *preparatory* work in this war. The Japanese are the first to recognize the true value of an army Medical Corps. Care of the sick and wounded consumes but a small part of their time. The solution of the greater problem, preserving the health and fighting value of the Army in the field—by preventing disease, by careful supervision of the smallest details of subsisting, clothing and sheltering the units,—is their *first* and most important duty. Their capacity for detail is something phenomenal; nothing seems too small to escape their vigilance, or too tedious to weary their patience, and everywhere—in the field with the scouts, or in the base hospitals at home, the one great prevailing idea is the prevention of disease. The Medical Officer is omnipresent. You will find him in countless places where in an American or British Army he has no place. He is as much at the front as in the rear. He is with the first screen of scouts with his microscope and chemicals, testing and labelling wells so the army to follow shall drink no contaminated water. When the scouts reach a town, he immediately institutes a thorough examination of its sanitary condition, and if contagion or infection is found he quarantines, and places a guard around the dangerous district. Notices are posted, so the approaching column is warned and no soldiers are billeted where danger exists. Microscopic blood tests are made in all fever cases—and bacteriological experts, fully equipped, form part of the Staff of every Divisional Headquarters.

The Medical officer also accompanies foraging parties, and with the commissariat officers, samples the various food, fruit and vegetables sold by the natives along the line of march, long before the arrival of the army. If the food is tainted or the fruit

over-ripe, or the water requires boiling, notice is posted to that effect, and such is the respect and discipline of every soldier from commanding officer to the file in the ranks, that obedience to its order is absolute.

The Medical officer is also found in camp, lecturing the men on Sanitation, and the hundred and one details of personal hygiene,—how to cook, to eat, and when not to drink, to bathe, and even to the direction of the paring and cleansing of the finger nails to prevent danger from bacteria. Long before the outbreak of hostilities he was with the advance agents of the army, testing provisions that were being collected for troops that were to follow—and as a consequence of these precautions, he is *not now* found treating thousands of cases of intestinal diseases, diarrhoeas or dysenteries, contagion and fevers that follow improper subsistence and neglected sanitation,—diseases that have brought more campaigns to disastrous terminations than the strategies of opposing generals, or the bullets of their followers.

It is much too early to submit statistical proof—but from careful observation I venture to predict the records of the Japanese hospitals will show a large reduction in the percentage of mortality from casualties, especially in penetrating wounds of the skull, chest and abdomen, and injuries to osseous structures—indeed of every variety of wounds, except perhaps those of the spinal cord, when compared with the statistics of former wars. Up to August 1, 9,862 cases had been received at the Reserve Hospital at Hiroshima, of whom 6,636 were wounded. Of the entire number up to that time, only 34 had died.

To July 20, the Hospital Ship Hakuai-Marui alone, brought 2406 casualties from the front without losing a single case in transit. Up to July 1, 1105 wounded—a large proportion of whom were stretcher cases, were received at the Hospitals in Tokio—none died, and all but one presented favorable prognosis. It is upon this, and much additional ocular evidence that cannot be here tabulated that the prediction is based. A contributing factor to this happy result has been the application of the principle of non-interference—by probe or otherwise, except by

first aid dressings or immobilization of limbs on the battlefield, and the thorough antiseptic methods in after treatment.

But it is in that far more terrible and pathetic class of losses—the needless sacrifice of 400 lives to preventable disease, for 100 who die legitimately (as history has shown occurs in every war) that the most astounding reduction will be shown. If the testimony of those conversant with the facts can be accepted, supplemented by my own limited observations the loss from preventable disease in the first six months of this terrible conflict, will be but a fraction of one per cent. This, too, in a country notoriously unsanitary. Compare this with the fearful losses of the British from preventable disease in South Africa—or worse—with our own losses in the Spanish-American War—where in a campaign the actual hostilities of which lasted 6 weeks the mortality from bullets and wounds was 268 whilst that from disease reached the appalling number of 3862, or about 14 to 1, or 70%, one per cent. against 70%.

Regardless of the ultimate outcome of this terrible war, history will never again furnish a more convincing demonstration of the benefit of Medical, Sanitary and Commissary Departments, thoroughly organized, equipped and *empowered* to overcome the silent foe.

Every death from preventable disease is an insult to the intelligence of the age. When it occurs in an army, where the units are compelled to submit to discipline, it becomes a governmental crime. Witness the French campaign in Madagascar in 1894 where, of the 15,000 men sent to the front, 29 were killed in action, and over 7,000 died en route, to and from the scene, from preventable causes.

The Japanese do their killing, but they do it differently. They too have their tragedies, but they are legitimate tragedies of grim war, not governmental murders through criminal neglect. By the methods, I have faintly described their recognition of the importance of preventive Medicine and Sanitary and Commissariat supervision, they have doubled the fighting efficiency of their army, and reduced to a minimum the loss from preventable disease.

Naturally one asks—were these results anticipated? As an answer, the statement of a distinguished Japanese officer, when discussing with me the subject of Russia's overwhelming numbers, is pertinent: "Yes," he said, "we are prepared for that. Russia may be able to place 2,000,000 men in the field. We can furnish 500,000. You know in every war 4 men die of disease for every one who falls from bullets. That will be the position of Russia in this war. We propose to eliminate disease as a factor. Every man who dies in our army must fall on the field of battle. In this way we shall neutralize the superiority of Russian numbers and stand on a comparatively equal footing."

Compare this with the attitude of Russian officials in the far East as stated by Captain Gunderson—Russian Commander of the Steamship *Unison* wrecked off the Miaotau Islands last August as she was attempting to run the blockade at Port Arthur. I was on the wreck three days in company with my friend Captain Boyd, 10th U.S. Cavalry—and Captain Gunderson repeatedly assured us that no one in Russia ever had any idea Japan really intended war. As an evidence he cited a conversation with his brother-in-law, who is the Russian Surgeon General at Vladivostok, and who said: "Oh there will be no war. If Russia expected war I should be the first to know it, so my hospitals could be in readiness. As it is, I have never been so short of supplies as I am today. There will be no war." That night Admiral Togo torpedoed the Russian squadron, and practically closed Port Arthur to the outside world.

What was true of the Russian Medical Corps was equally true of every branch of the Russian Service in Manchuria. "There will be no war," echoed the newly arriving officers; and the carnival of revelry that has marked the Muscovite invasion since 1898 was intensified by added numbers. Arriving trains that should have been crowded with men and munitions of war, brought each a full compliment of the demi-monde and vodka. The thousands of these creatures and tens of thousands of cases of vodka that passed over the Siberian railway, in place of food and equipments must have horrified even the gentle Verestchagin, familiar as he was with war, in its most brutal and bestial aspects. Had he lived

to portray recent scenes in Manchuria he could have revealed to the victimized suffering masses at home a perfect nightmare of debauchery, apathy, and criminal carelessness. His historic picture of a battlefield in the Russo-Turkish war, with the dead and dying soldiers lying bleeding in the distance, while in the foreground, the Russian headquarters were strewn with empty champagne bottles and the rags of harlots, had its counterpart in the scenes that greeted the eyes of the observer at Port Arthur, Newchwang and Vladivostok. Wine, women and song, were certainly the undoing of Russia, where a beauty and a bottle were the highest ambition of its officers—from General to Corporal. Sodom and Gomorrah—the current synonyms of Port Arthur and Vladivostok, in the Orient, were temples of virtue in comparison to the debauchery, licentiousness, flagrant immoralities and openly flaunted vice recently practiced in those unhappy cities. *This was Russia's preparation for war.* But, if the bloody conflict now waging serves to awaken her from her terrible nightmare, and brings about her moral regeneration (and nothing less than such a catastrophe *can* do it) then civilization will ultimately be promoted and the masses of suffering humanity in that grand country will come in some measure by their own. But as Kipling says, "this is another story."

You have heard how elaborately and with what wonderful perfection of detail the Medical Department of the Japanese Army is organized. The nation is not rich; and the creation of this great establishment and its careful and studied work, has been for the definite purpose that is now showing such magnificent results. Japan is the first country in the world to recognize that the greatest enemy in war is not the Army of the Invader, but of that foe more treacherous and dangerous—preventable disease, found lurking in every camp, whose fatalities as I have said before and will reiterate again and again, have, in every great war of history, numbered from four to twenty times as many victims as all the mines and bullets and shells of the invader. It is against this enemy that Japan has made her hardest fight and attained her most signal victories—victories that have kept her men in superb condition, to respond to the call of their leaders and achieve the

dashing, brilliant successes that have marked their triumphal progress from the Yalu to Liaoyang in the teeth of the Russian foe, entrenched and fortified—whose units are no cowards, but who fight with the bravery of fanaticism and the courage of desperation.

Gentlemen, from the standpoint of a humanitarian, and a lover of his kind, I tell you it was a positive delight to visit that great series of hospitals, from Tokio to Sasebo, with their long wards filled to overflowing with wounded, suffering soldiers—the *legitimate* victims of war, their faces full of health and hope, despite their fearful wounds in the long, hard campaign of five or six months in Manchuria,—their chief desire to know how soon they could rejoin their comrades,—and to contrast them, in memory, with the vivid picture of the poor, wan, emaciated and almost hopeless faces that crowded the wards of our hospitals in Cuba and Porto Rico, in Tampa, Chattanooga and Camp Alger (Heaven save the name!) and Montauk Point in 1898—and in the Philippines in 1899 and 1900—the *innocent, unwounded and illegitimate* victims of another conflict, which, in comparison with the one now waging, would be considered no more than a skirmish among outposts. *If wars are inevitable, and the slaughter of men must go on*—(and I believe wars *are* inevitable, and that most of them are ultimately beneficial,) let our men be killed *legitimately*, on the field, fighting for the stake at issue,—not drop them by the wayside by preventable diseases as we did in the Spanish American war—1400, for every 100, that died in action. It is for the 1400 poor devils who are sacrificed—*never* for the 100 who fall gallantly fighting, that I offer my prayer.

And yet, should occasion arise for the gathering of another army of 250,000 next summer, what evidence is submitted to prove that the lamentable scenes of 1898 with all their nauseating details would not be repeated? Where, as in Porto Rico, Tampa, and Chattanooga no fighting was done,—but where more sick and invalided were gathered at one time than would overload any dozen transports and hospital ships with men who never smelled powder, or saw a hardship of real war, and who, had they been properly subsisted on the principle of the Japanese today, would

have returned to their homes and vocations healthy and happy as after a summer's outing? I ask what tangible evidence is submitted to show that history would not repeat itself, and that such an army gathered hastily, would not again be brought almost to its knees, through the same ignorance and incompetency? We have recently heard much of the reorganization of the American Army, and the creation of a General Staff. Commanding that Staff is an officer, as courageous, as gallant, as heroic and, I believe, as representative as ever drew a sword, and yet the importance of this momentous subject—the study of preventable disease, and the saving of eighty men out of every 100 that always die in war, is considered of such minor import, that no place was found on it for a Medical Representative.

The three great lessons to be learned from the Japanese War are from the Medical, the Commissariat and Transport Department. The Japanese authorities permitted our government to send five military attachés to accompany their army in the field. Was a Surgeon, or a Quartermaster, or a Commissary officer detailed? No. They represented the *life-saving* and *life-preserving* departments, and they were omitted. The killing department got the appointments, the cavalry, ordnance, infantry, etc., and today Japanese officers are laughing in their sleeves at our senseless failure to have representatives on what they consider their three vital points, whilst the only weak, almost burlesque feature of their army, its cavalry, is considered of sufficient importance to be worthy of special study. Certainly "it is to laugh." But what can be expected of a government that, after its terrible lessons of 1898-9 still insists—especially in the tropics—on subsisting its army on a ration so rich and elastic, (lovely term, that, elastic), so *elastic*, that when in the emergency war, its elasticity is *tested* it bursts its bands, and is found to consist of pork and beans and fermenting canned rubbish, that in 6 weeks prostrates 50% of its 250,000 units with intestinal diseases, and sends 3,000 to their last homes—to say nothing of the enormous number invalided, and the 75,000 pension claims? That, in its famous army reorganization fails utterly to recognize one of the most important of all the departments, namely, that of sanitation, as it is recognized by the Japanese today? That holds its great life-pre-

serving department in such light esteem, that but one officer in the entire army can even reach the rank and emoluments of a brigadier-general? That on its general staff fails to have a single representative of this department—or, if any—only a young, inexperienced man of inferior rank, instead of the ablest and most experienced officer in, or out of the service—one of international reputation, like our retired Surgeon General Sternberg, whose rank should not be less than of a Major General, and whose opinions would carry weight in councils of war? I tell you, gentlemen, rank and its emoluments count. Without the position, its pay and its dignities, especially in the army, it is impossible to enforce the respect and discipline necessary for obedience and order. This is the curse, and cause of failure of the British Medical Service also, where, instead of "Saw-bones," its representatives are contemptuously termed "Pills" and "Bubo Lancers," and which, in its organization is as far behind Japan as are the Americans. Herbert Spencer in his *Synthetic Philosophy* refers to "the ill treatment accorded the medical officers of the English Army," as "a late survival of the days of feudalism and contempt for the purely scientific." What, I say can be expected from a Congress, so devoid of business principles, that it prefers pensions, to prevention? That even now seeks by legislative enactment to prevent its guardians, when in the uniform of their country, from wearing the medals won in its defense—bits of ribbon, for which, since the days of knighthood and chivalry, men have laid down their lives on the field of honor?

Of a Congress that permits a lot of well-meaning, but misguided fanatical women to degenerate its army by depriving it of one of its most beneficial features,—a well-regulated canteen,—the outgrowth of the best thought and experience of able, trusted officers, thereby driving its fighting units to low grogeries and brothels, from which they are frequently brought back by the patrol, candidates for the guard house or venereal wards of the hospital, or both. Why, I ask again, should we expect reforms from authorities who, in their great preparatory schools, West Point and Annapolis, furnish the cadets practically no instruction in the important studies of physiology and hygiene, so that when

they come to command the fighting units of the army, they can be prepared to guard them against the silent foe which scores 80% of the deaths? Like the rest of the world, we go blundering on, spending millions annually for the maintenance of these great military schools and arsenals and war colleges, educating men in the art of human destruction, while the more formidable adversary in the ranks,—the grim spectre that kills 80%, is left comparatively unheeded?

Gentlemen, it is time for this Association of military and naval surgeons to voice its sentiments in no uncertain notes—to demand another reorganization of our army wherein that branch of the service that grapples with the silent foe that kills 80% shall be recognized with equal rank and emoluments, with the other branches, who, all combined, oppose the enemy who kills only 20%, and whereby the government of the United States shall give to its guardians the rights to which, as citizens of the republic, they are justly entitled. The State deprives the soldier of his liberty, prescribes his exercises, equipment, dress, diet, the locality in which he shall reside, and in the hour of danger expects him, if necessary, to lay down his life in its defense and honor. It should, therefore, give him the best sanitation and the best medical supervision that the science of the age—be it Japanese or Patagonian—can devise. How this great moral obligation has been fulfilled in a land which fifty years ago was regarded by the Occidental world as semi-barbarian, I have endeavored to show. If we cannot improve on this system, then we had better meekly follow—for I unhesitatingly assert, we are as far behind the Japanese in matters of military medical organization and sanitation as were the disciples of Confucius in the days of Kublai Khan—further indeed—for they at least exercised instinct instead of so-called brains, in the selection of their food and the care of their stomachs.

Perhaps the day is not distant when another summons will come to join the Army of the Republic,—when the first call may be, not as in the great Rebellion for 60,000 men,—nor as in the Spanish-American War for 250,000—but when, more likely it will be for a round half million, to be followed possibly by another

of equal number. And a question will be asked by the young patriot of that day,—not *who* the enemy is he is to meet—no, the American boy is *not* built that way,—but he will demand to know what measures have been taken to ensure him against the silent enemy who kills the 80%. And when he learns the same prehistoric regulations as to sanitation, and protection against this foe are in force as they were in 1904, will he respond to his country's call? Yes, he will—for that is the way the American boy is built—And he will follow, as did his forbears, in their footsteps—and he will fall by the wayside as they did before. And history will record another crime.—

“We see by the light of thousands of years,
And the knowledge of millions of men,
The lessons they learned through blood and in tears
Are ours for the reading, and then,
We sneer at their errors and follies and dreams,
Their frail idols of mind and of stone,
And call ourselves wiser, forgetting it seems,
That the future may laugh at our own!”

DISCUSSION.

SURGEON CHARLES FRANCIS STOKES, U.S.N.: I would like to say a word in connection with this interesting paper. From the early fall of 1892 for nearly three and a half years I lived among the Japanese while serving in our naval hospital at Yokohama. During that period I saw nothing in the physical make-up of the people to attract special attention. I have operated upon them and have treated them in other ways and I noticed that wounds among them when improperly treated are followed by infection, and they showed the same signs of suffering from infected wounds, and cringed from the knife, just as people of other nations do.

The abstemious habits ascribed to them did not give them freedom from diseases of the digestive organs. When exposed to the same infections, digestive and otherwise, as we, they die as we do. During my stay in Japan whole communities died from dysentery, but through adopting the hygienic measures taught by other nations and living up to them, they have been able to cause a marvelous fall in their appalling death rate.

The Japanese have displayed good judgment in the selection of the best of what is going, they have faithfully lived up to that best, and why? First, because they have been intelligently and without prejudice backed up by their government from the highest individual in it to the lowest; second, because they have no bad practices and old prejudices to stumble over and to hamper them,—their field is new. They have been preparing for this conflict for ten years; it has been their one aim and object year in and year out;

they have lived for this great effort and now that it has come they are found well prepared. I feel that Major Seaman's statistics are premature. The Japanese practice no sanitary or surgical measures not taught in our service schools today. Their efficiency shows rather what a proper appreciation of the importance of the Medical Departments of the Army and Navy can bring about when it is intelligently backed up by the powers that be.

Our conflict of 1898 was rather precipitate and some of us may have been unprepared but I believe inquiry into the matter will show that the fault did not lie with those of the two arms of the service.

This paper is full of forceful and timely suggestions. I wish Major Seaman had given us some of the Japanese statistics of ten years ago for comparison.

In regard to beriberi, I do not think it a question of diet but one of toxæmia. I have had beriberi myself. At the time I was infected I was living on the best of diets, under excellent hygienic conditions and was practicing habits fairly good. [Laughter.] It is my belief that the infection was incurred at Colombo, Ceylon, for I did not leave the ship for four or five weeks when the symptoms showed themselves.

I believe that the disappearance of beriberi from the Japanese Navy was not due entirely to their improved ration, but merely coincident with it, for with the improved ration went sanitary and other improvements, all along the line. [Applause.]

MAJOR SEAMAN: I wish to follow up this subject with a suitable set of resolutions. [The resolutions were then referred to the Executive Council and being reported back as follows, were unanimously adopted:]

Resolved, That the Association of Military Surgeons of the United States now assembled, respectfully petitions Congress at its next session to reorganize the Medical Departments of the United States Army and Navy on a broad basis similar to that of the countries most advanced in military sanitation, giving to their officers equivalent rank, dignity and power, and to their personnel ample numbers for the proper care of the ill and injured in military and naval service.

Resolved, That this Association recommends that the sale of beer be permitted at Army post exchanges subject to such regulations as shall be determined by the General Staff and the Secretary of War.

Resolved, That while appreciating the fact that military sanitation has finally been introduced into the general scheme of military instruction and has been made a requirement in the examination of Second Lieutenants for promotion, nevertheless this Association believes that an adequate knowledge of "the care of troops" is of such vital importance to our Army that it should be given adequate recognition in all our Army and Navy schools and especially in the Staff College and War Colleges, and that the present courses at West Point and Annapolis should count in the requirements for graduation: it therefore respectfully petitions the President to make this resolution effective.

THE APRON STRETCHER.

By GEORGE A. LUNG, A.M., M.D.,

SURGEON IN THE UNITED STATES NAVY.

PERHAPS nowhere in the world are surgical injuries so likely to occur and in such infinite variety, and perhaps nowhere else are there so many unavoidable obstacles against their

easy and favorable treatment as on a modern man-of-war.

Owing to the crowding of men in relatively small spaces, the employment of complex mechanical contrivances, and the hazards of unusual occupations, many accidents are not uncommon.

These conditions that prevail daily in times of peace are aggravated a hundred fold during an engagement. Then the hurry and excitement, the dangers incident to handling explosives and ammunition, and the firing of various weapons of war, to say nothing of the countless dangers imposed by the enemy, multiply the chances for injuries innumerable.

Accidents from within the ship itself, or violence inflicted

by the enemy from without, may prostrate half a ships company, and the character of the injuries will vary from slight contusions



Parts of Apron Stretcher Separated.

to complete destruction of the body. The possible variety of wounds and their degrees of violence are infinite.

How to treat these wounds is a question that would be a comparatively simple one if it were only a matter of applying our best known skill and mechanical contrivances. But battles on land and battles on sea present widely different conditions from those that are encountered in civil practice. In the former battles are often remote from hospitals, and the contour of the country will not admit the use of ambulances. Moreover nurses and attendants may meet with the same fate that has come to those they would render aid. Surgical skill is hampered by lack of ordinary facilities, and septic influences are unavoidable.

But bad as these conditions are on a battle field, they are apt to be far worse on a battle ship for here we have all the dangers of the battlefield plus cramped quarters, complex construction of the ship, and the continuance of the dangers to the wounded as well as those who are able to continue the fight.

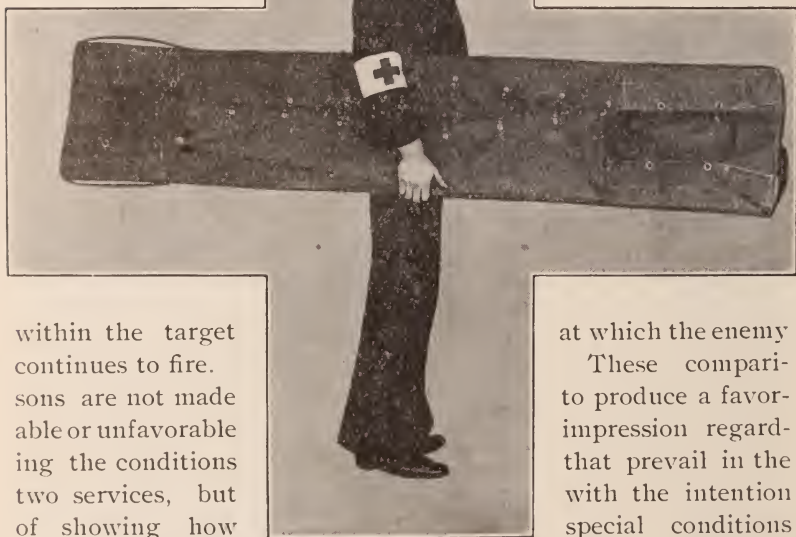


Empty Apron Stretcher.

In a battle on land the fighting line will probably shift its position, leaving the wounded a little later in a zone of safety, or if it remain fixed, provision can be made for removing them to a point of comparative safety, from which they can be moved later to a still safer place and finally treated. Or at the worst they can be so placed for the time being for the movements of others to continue the action. In a battle on board ship do not enjoy the immunity granted by the red

ed they will be safe and not hamper the others who are able to

During an engagement the wounded on board the ship do not enjoy the immunity granted by the red cross. They remain



within the target continues to fire.

These comparisons are not made able or unfavorable regarding the conditions of two services, but of showing how they exist on battle conditions which are the difficulties

ed men owing to the complex structure of a ship.

Showing ease with which Apron Stretcher may be carried empty.

at which the enemy

These comparisons to produce a favorable impression regarding that prevail in the with the intention special conditions ships. And these we have in mind, in handling wounded

Unless one has been on a modern man-of-war and examined its interior construction he can have no correct notion of what the naval surgeon has to contend with in his care for the injured.

With its mass of machinery, its tangle of pipes, conduits, wires, rods and hoists, its labyrinths of compartments, its maze of long narrow and often tortuous passages, its hatchways leading down to depths or opening up to lofty elevations, it is confusing in the extreme. The structure is as complex as the human anatomy. The multiplicity of barriers are as embarrassing as those artificial obstructions one encounters in an obstacle race. Even for a healthy sound man to move about within a man-of-war, such as we have in mind, calls for almost the constant use of both hands and feet, and more than ordinary agility.

There are coal bunkers into which men go, work and are sometimes injured, the only exit from which is through a circular opening twenty inches in diameter. There are military tops many feet from the deck in which men are stationed in time of battle, and while there they may be severely wounded. Access to and from these tops is through a small aperture in their floor and down many feet by perpendicular ladders, and over bridges and various platforms. There are fire rooms whose only means of egress,

especially during an engagement is a perpendicular ladder twenty or more feet in height. And so one might go on naming many similar difficulties encountered in going from one part of a ship to another. How then is the surgeon to handle safely the injured with all these conditions existing?

Where ever the patient may be at the time he receives the injury, the time will come when, either during or after the en-



Lowering a patient from the fighting top.

gement, he must be moved elsewhere; it may be to some other part of the ship or to another vessel, and on the manner of his removal will depend in a large degree the question of his recovery.

Thus special methods are demanded and the ingenuity of the naval surgeon is taxed to the utmost.

Probably the stretcher that will meet all possible conditions

will never be constructed, since the difficulties, particularly on a battle ship, will always remain in a degree superior to the cleverest contrivances.

In taking up the problem of inventing a stretcher that will meet all the requirements that may be made of it on board ship, the writer has asked himself two crucial questions:

First. How would you bring a man who had been rendered helpless by a severe injury, say a fracture of both femurs; down from the upper forward fighting top to the sick bay of such a ship as the Kentucky? A healthy agile man, free handed and free footed, would come down climbing over the following structures:—Through the lubbers hole in the floor of the top,



Bringing a patient down a ladder.

down by a ladder let in the side of the mast to the lower fighting top, thence through a similar lubber hole, and down a similar ladder to the search light platform, thence to the bridge on top of the pilot house, thence down a narrow stairway to the forward bridge, thence down another ladder to the fore and aft bridge,

thence down another ladder to the upper deck, thence forward twenty or thirty feet to another ladder to the main deck, thence down still another ladder to the berth deck on which the sick bay is located. Excepting the ladders on the side of the steel mast, all the other so called ladders are really flights of stairs made of steel and inclined at an angle of forty-five degrees, and about twenty inches wide from side to side. Their sides are protected by hand ropes, that is a single rope on which one ordinarily holds in going up or down.

Second How would you move a man equally severely injured from the lower platform in the engine room to the sick bay.

The first question covers the possibility of carrying a man from one of the loftiest heights of the ship, and the other from practically her lowest depths. And in both these places men are employed and

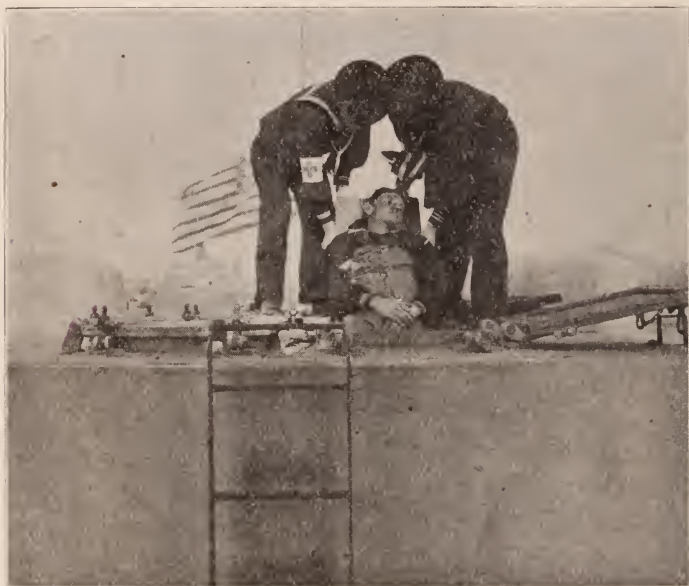


Some of the difficulties of transporting a patient from the engine room.

likely to be injured under certain conditions. The journey from the engine room represents a distance nearly as great as that from the fighting top and the obstacles are more numerous and difficult to overcome. Several more steeply inclined ladders would have to be climbed, one or two narrow plat-

forms traversed, and a narrow hatch or two crawled through. Nearly all these movements would have to be made where even a moderate sized man could not stand erect, and in close contact to a tangle of enginery that may be in motion.

The writer concluded that if a stretcher could be devised that would fairly meet these two tests, it would be equal to almost any other demand that might be made upon it.



Patient in Apron Stretcher being lifted out of turret.

In designing a stretcher it must be borne in mind that it must be constructed in such a way that it will be equal to the worst case that is likely to occur. Again the particular stretcher we are aiming at should, in addition to the surgical features it must possess, be so constructed that it will readily conform to the conditions that prevail where it is to be used.

The first thing that surgical art teaches us is that the patient in being moved must be handled with the utmost consideration. His body must be carried in such a way that it is positively at

rest and there is no localized movement of one part on another. To this end the first thing that suggests itself is some sort of a splint to be applied to his entire body, thus providing in a general way for all kinds of injuries in whatever part of the body they may occur.

If by some subtle art we could temporarily render the body of our patient rigid, we would have an ideal condition to aid us.

If a light, strong, closely fitting metal sheath could be applied to his body in such a way that it would occupy but a fraction of an



Apron Stretcher carried by two attendants; Hammock Mattress included with patient.

inch greater than his own exterior, we would likewise have an ideal arrangement. But the mechanics of such a plan is beyond our capabilities, and moreover it would not be practicable since men differ so much in size and shape no one frame would fit any two men.

What seemed best was a platform like arrangement a trifle larger in area than that occupied by the body of the patient. This platform must be sufficiently strong and rigid to retain its

splint like action with a heavy weight upon it, and at the same time present a surface that will be somewhat yielding to the conformation of his body.

And having determined the base on which to place the patient, the next consideration was how to secure him there, for some device to accomplish this was necessary since our patient could not always be carried in a horizontal position; indeed there would be occasions when he must be held vertically.



Apron Stretcher with patient secured; manipulated by one attendant.

These two requirements settled, a third arose, namely; suitable handles by which to grasp or suspend the contrivance.

These three requirements are regarded as the prime essentials of a stretcher that will answer our purpose.

Besides these three essentials there are other features which it should possess.

It must be made sufficiently large to accommodate the largest man that may be placed upon it. At the same time it must be so small that it may be carried along and through or up and down the confined places where it is to be used. The smaller it is, so

long as it will safely splint the patient, the better will it be adapted to our purpose. Besides its smallness of bulk is a great desideratum when it comes to the question of stowing away a number of them on board ship or other places where space must be economized.

It must be constructed in such a way that the patient can be quickly placed upon it and in the shortest time possible secured for transportation.

It must be light in weight to enable its being carried readily when empty, and not be cumbersome when the patient is on it.

It must be sufficiently strong to bear the weights that will be placed upon it, and to endure the rough usage it is likely to be subjected to.

The material from which it is constructed must be so disposed that it will not splinter and thus inflict injury if struck by a missile.

It must be simple in construction so as to facilitate its ready application and not involve undue expense in its manufacture.

The writer has endeavored to devise a stretcher with all these requirements in view. He feels that he has accomplished all the prime essentials as well as the other desirable features before named.

Because of the apron like arrangement for securing the patient to the stretcher he has named it "The Apron Stretcher."

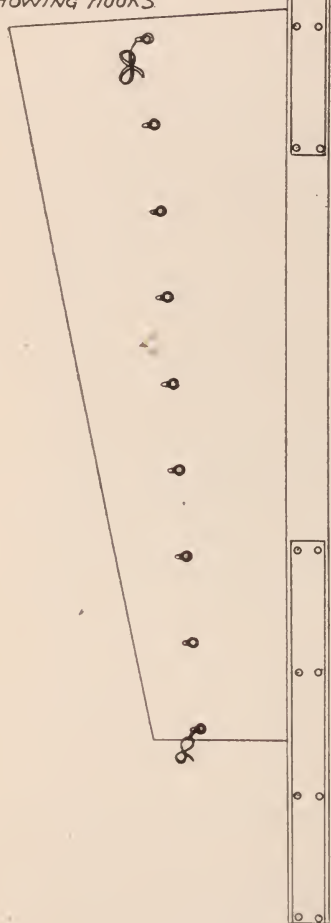
The accompanying drawings and photographs will serve to explain its construction and uses in detail.

In general it may be described as follows:

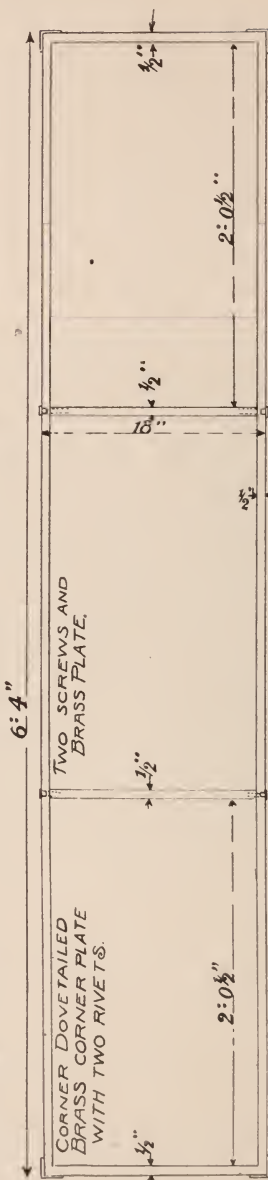
Over a light ash frame is stretched a canvas covering or bag. One side and end of this covering is left open so as to allow the frame to be introduced, after which it is tightly laced up. This combination of ashen frame and canvas cover constitutes the splint base, locally soft and yielding to the body, but structurally strong and rigid.

To one side of this covering are secured two flaps or aprons as indicated in the drawings, which are folded over the body of the patient from his axillae to his ankles, if need be, and then secured by hooks and lacings, quickly fastened in the same way as the ordinary lace shoe is fastened. At both ends and a part of the length of both sides, handles are placed by which to grasp and lift or suspend the apparatus.

SIDE VIEW WITH
APRON RAISED
SHOWING HOOKS



THREE CANVAS HANDLES ON EACH SIDE
SECURED TO COVER BY COPPER RIVETS AND BURRS



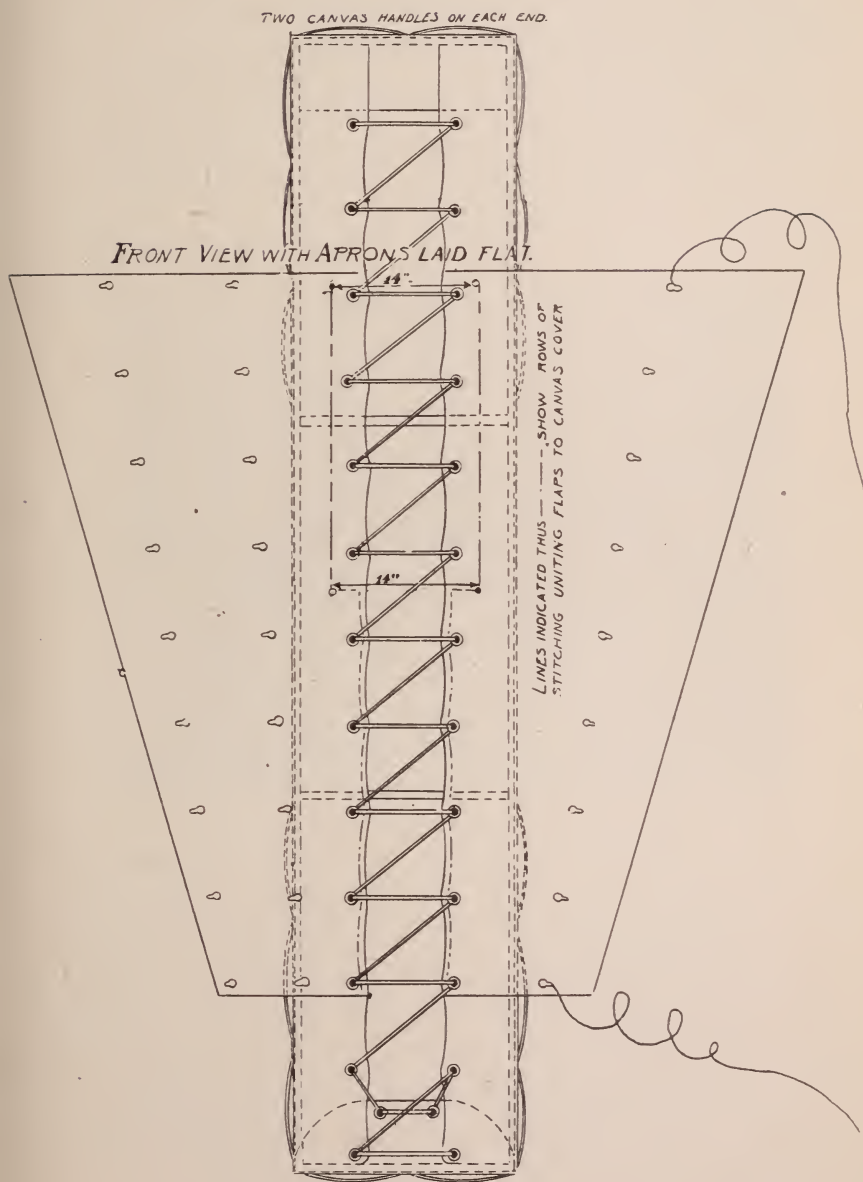
TWO SCREWS AND
BRASS PLATE.

CORNER DOVETAILED
BRASS CORNER PLATE
WITH TWO RIVETS.

FRAME OF ASH.



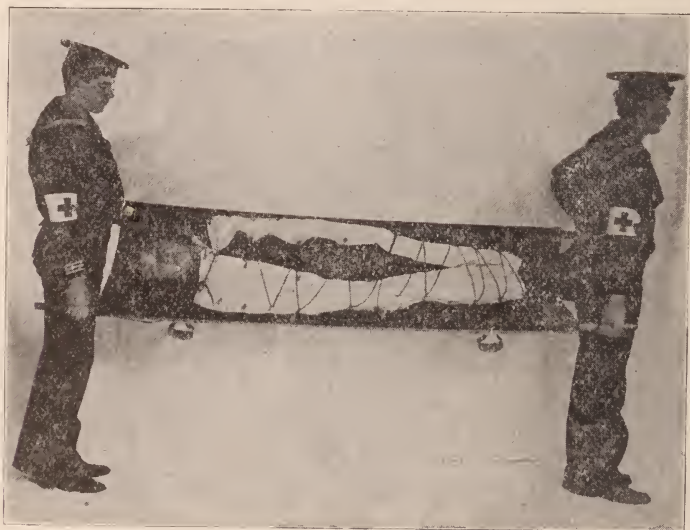
The Apron Stretcher—Details of construction.



The Apron Stretcher—Details of construction.

In securing the patient in this stretcher his arms may be left free thus adding to his sense of comfort, and he may be able to assist a little in his own transportation, or one or both may be included in the apron fastening.

Before lacing up the apron, if it appears desirable, splints, cushions, or padding of any kind may be included. The ordinary hammock mattress may be fastened in with the patient to add, perhaps, to his comfort and safety. In most cases nothing additional is needed. If the case treated happens to be a fracture of the femur, the stretcher alone without other splinting is suffi-



Apron as applied to the standard Army Stretcher.

cient for the time being, the buttocks sinking deeply in the canvas side and lacing. If it is a case of fracture of the humerus, the arm may be placed along side and a little to the front of the thorax and held there by the apron until more elaborate treatment is applied later on. Or if it is a fracture of the forearm it may be laid across the front of the abdomen and into the groin and likewise held temporarily by the apron.

If pressure on any part of the patient within the aprons application is contraindicated, the lacing may be interrupted at the proper intervals, instead of being laced continuously.

Once secured within the apron the patient can not fall out, suspend him in whatever way you choose. The apron conforms closely to the shape of the patient and renders a uniform and even support to all that portion of his body enclosed by it. This feature suggests its use as a straight jacket.

I regard the apron attachment as the most important feature of this stretcher. The platform to which it is attached is more or less a modification of already existing contrivances, the modification securing, in addition to lightness, a moderately soft and yielding surface for the patient's body. I do not know that any arrangement for handling the injured like this apron has been invented.

I have applied this apron to the standard army stretcher and experimented with it with excellent results

This particular stretcher weighs ten pounds or less. Its cost is insignificant.

Being light in weight many of them can be transported with but little expenditure of effort, and being less than three inches in thickness, many can be stowed away with great economy in space. One dozen of them packed carefully would make a pile less than three feet high.

Should occasion demand it, and in places not offering too many obstacles, this stretcher with a patient on it, could be handled by one attendant. Two could do so in most places by grasping the handles at either end. And handles are provided so that three, four or more may seize hold if necessary.

The original intention was to devise a stretcher that would satisfy the needs that exist on board a naval vessel. The result shows a possible range of application far beyond this.

It may be employed as a stretcher for special uses such as lowering disabled persons up and down hatches, ladders, steep stairways, from aloft, over a ship's side, in narrow and confined spaces, in buildings or under ground, in and out of passenger coaches by the window or from the windows of buildings when other means of egress are excluded.

Its lightness in weight and smallness in bulk particularly adapt it for ambulance service.

THE OPERATION FOR THE RADICAL CURE OF VARICOCELE.

By LIEUTENANT COLONEL AUGUSTIN AGUIRRE,
MEDICAL DEPARTMENT OF THE MEXICAN ARMY.

VARICOCELE being a disease relatively frequent in Mexico, and also as it incapacitates soldiers for military duty (when it has reached an advanced stage and is painful) I wish to call your attention to a surgical process for radically curing the disease; a method at once simple and effective, which has been employed for some years by Casimiro Preciado, ex-Surgeon Major of the Mexican Army.

It consists in employing at the same time transverse resection of the scrotum and the excision of the bundle of varicose veins.

Before passing to a description, let us study the indications for this operation. Radical treatment for varicocele is indicated for the following cases: (1) when it is very far advanced, because then the vitality of the testicle is seriously involved; (2) when it is painful and causes the patient great disturbance; (3) when it causes atrophy of the testicle and impairs its functions by weakening the genital faculty; (4) when it causes serious nervous perturbation, such as neurasthenia, psychic disorders, tendency to suicide, etc.

In describing the operation we will begin with the preliminary steps. The day before the patient is to be given a purgative, he must be perfectly washed, the pubis and testicles shaved and besides a moist antiseptic dressing applied and left in place twenty-four hours.

For the operation it is necessary for the patient to be anesthetized, using chloroform or ether, or by applying cocaine by the Tuffier method, or locally. This last gives very good results when one employs the Reclus method as modified by Preciado. This modification consists in applying the injection in the derma itself zigzag (the solution to be 2 per cent.) that is, pricking obliquely and alternately on both sides of the place to be cut so that

the anaesthetic solution acts on the right and left side covering a space two or three centimeters in width all along the line to be operated on.

TECHNICAL DESCRIPTION OF THE OPERATION.

The patient once insensible, you proceed to perform the operation, which may be divided into four stages. The patient should be placed flat on his back, the lower limbs straight out, a little way apart. The surgeon should be on the left and the assistant in front. The dressing which was applied the day before, is then removed. The spot to be operated on is then surrounded with aseptic linen and you proceed to the first stage of the operation.

First Stage.—Both testicles are now pushed towards the inguinal canals and a pair of very much curved clamp forceps are placed crosswise, pinching up that part of the scrotum to be resected, this, of course varying according to the size of the scrotum. The cut is made with a bistoury, including in this cut all the tissues of the testicle covering. The forceps are then removed and you have an ample wound. As the pouches are very vascular, and the wound has been made transversely, the number of small blood vessels cut is considerable. Here you proceed to the—

Second Stage.—This consists in complete hemostasis. All the blood vessels cut, however small they may be, should be tied up, because there have been cases in which, on account of not tying up a small blood vessel which was overlooked, serious hemorrhage has set in, and this necessitated the removal of the stitches in order to tie up the blood vessel and stop the hemorrhage. There have been cases where sixty blood vessels had to be tied. The hemostasis once completed to your entire satisfaction you pass to the—

Third Stage.—Dissection and ligation of varicose veins. As you raise the upper side of the wound, the two testicles and two cords are entirely uncovered so that the bundle of varicose veins is completely in sight. You then proceed easily to the dissection of the diseased veins, taking care, naturally, not to injure the deferent canal and the spermatic artery. The vein once isolated, a double thread of catgut is passed to make the ligatures on the

two ends of the varicose veins and the resection is done between the ligatures.

Fourth, and Last Stage.—The suture. This is done by planes; the deepest with catgut and the superficial ones with Florentine horsehair. An aseptic dressing covers the wound. Healing by first intention is the rule in all cases.

This proceeding has the following advantages:—

1. The resection of the scrotum gives for a result the formation of a real and natural suspensory which keeps the testicles in a good position and impedes a repetition of the disease. In some cases, although rare, the simple resection of the scrotum has sufficed to cure varicocele.

2. The ample wound which results, once the resection of the scrotum is finished, brings to view the two testicles and the two cords, so that this incision alone suffices for an operation for double varicocele, cyst of the cords, gumma of the testicles, etc., as has some times happened.

3. The dissection of the bunch of varicose veins is made much more easy because one sees at a glance the component parts of the cords and thus avoids wounding or tightening in the ligatures the spermatic artery or the vas deferens. Either of these accidents would be serious and of deplorable consequences. Also when the posterior bunch of veins is varicose, it is easier to dissect and resect them.

This method has been applied up to date in sixty cases. In all of them healing by first intention has resulted and the final result has invariably been satisfactory. In all cases the symptoms which induced this operation (such as neuralgia of the testicles, psychological perturbation, etc.) have disappeared entirely and the cure has been complete. Also in no case up to date has the disease returned.

DISCUSSION.

LIEUT. COL. HALLEY:—There is one objection I have to make to that operation, and that is tying the veins in a bunch; that is not good surgery. They will slip out and the bleeding is very disagreeable. In the second place it is almost impossible to prevent the wound sweating, and therefore it is best for the first forty-eight hours to put in a drainage tube so the sweating of the wound incident to the operation is avoided. For the last six or eight years I have followed that method of amputating the scrotum with results in every way satisfactory.

ORGANIZATION AND WORK OF THE MARITIME QUARANTINE SERVICE OF THE ISTHMIAN CANAL COMMISSION.*

BY SURGEON HENRY R. CARTER.

UNITED STATES PUBLIC HEALTH AND MARINE HOSPITAL
SERVICE,—CHIEF QUARANTINE OFFICER.

I AM asked to give a brief account of the organization of the Maritime Quarantine Service of the Isthmian Canal Commission and its work to date. If you find this in any way interesting, it will be because it shows that a fairly efficient quarantine can be conducted with very little obstruction to commerce; practically without apparatus and with the minimum personnel by utilizing the work of skilled officers at the infected ports, from which the vessels come.

In criticism of any quarantine, two things must be considered; first, the protection it gives and second the obstruction to commerce which it causes. The first should be the greatest possible and the second the least possible. It is easy to make a quarantine protective if no regard is paid to the burdens it places on commerce. It is equally as easy to run an unobstructive quarantine by risking the safety of the port to be protected. The end desired is the maximum protection with the minimum obstruction. As a quarantine answers to this test so is it good or bad.

A quarantine previously existed at Panama under the Colombian administration. There had been a quarantine for the last few years against plague. No plague was introduced during this time so that we cannot say that it failed to give protection. The accounts which vessel owners give of its operation, however, would show that *they* considered it decidedly obstructive to commerce. A vessel having aboard a few sacks of chick-peas in transit for Spain from Mazatlan, where plague had existed, was

*To September 26, 1904.

held something over three weeks and in spite of all the compromises offered by the agents, among which was to throw the peas overboard, the vessel was finally remanded back to San Francisco with her cargo unbroken. The same thing occurred several times with vessels from the south, one being held over four weeks, without disinfection, and was then allowed to land her transit cargo. Others were held weeks and then remanded back without breaking bulk or landing passengers.

Yet we find that passengers and cargo transferred at Guayaquil from a vessel having plague stricken rats, and aboard which a case of plague developed on her way south, landed at Panama three days after the transfer. This quarantine was only against plague. So far as I know, no precautions were taken against yellow fever at either this place or Colon and under the conditions which then obtained this was right; both places being generally infected.

On arrival, June 28th, we found the ports of entry under two authorities, Ancon and Cristobal being ports of the Canal Zone and Panama and Colon of the Republic of Panama. A decree of the Governor gave us the authority to administer such quarantine as was possible under the old Colombian laws for the Zone ports. A decree of the President gave full authority for the same for the ports of Panama and Colon. We were able under these authorities to formulate identical regulations for all the ports.

Far more important than the regulations is what we have done and this I will detail. That the plan may be understood, I must premise.

The diseases which then threatened and continue to threaten are yellow fever and small pox on the Caribbean side and on the Pacific side the same diseases and bubonic plague. Yellow fever exists at the Caribbean ports of South America and at Port Limon, Costa Rica, with all of which, from LaGuayra westward, we have considerable passenger traffic. The closest of these ports is about 18 hours from Colon. There is also yellow fever at practically all of the Mexican ports from Tampico south, with which communication will, I understand, shortly be opened.

There is no risk of plague from this side under the present conditions of trade and sanitation, although plague prevails in Rio and has recently extended northwards to other Brazilian ports.

On the Pacific side, yellow fever prevails intermittently at all the ports from Guayaquil to Mazatlan. Guayaquil, especially, has in recent years been virulently infected the year around—far more so than Havana was. This place also reinfects the smaller ports to the north of it whenever sufficient susceptible material accumulates in one of them.

South of Guayaquil, almost every port is infected with plague, and some are badly infected, and the probability is that this disease will persist there for some years.

We had no quarantine station of any kind, no building that could be used for the detention of passengers, no apparatus except sulphur pots, hand pumps, autoclaves, etc., just brought down from New York. We were able then to disinfect vessels at our ports only by great consumption of time and some risk of damage to the cargo. There was no place for the detention of such passengers as might be in the incubative stage of quarantinable diseases except on the vessel after its disinfection here.

Moreover, both Panama and Colon seemed to be free from small pox, plague, or yellow fever and it seemed advisable to take as much precaution against the introduction of these diseases to the Isthmus as is necessary for one of the Gulf ports of the United States. The country was infectable but seemed to be free from these diseases and it was necessary to keep it free. There was however some latent infection in Panama. Colon has remained free.

Now our methods. Officers of the Public Health and Marine Hospital Service are stationed at Callao, Guayaquil, and Panama on the Pacific coast, and at LaGuayra, Bocas, Port Limon, Puerto Cortez and other points on the Caribbean. It is only of the Pacific coast I will speak in detail because the method of operation can be sufficiently understood from the Panama quarantine. Our work begins at Callao. There Dr. Lloyd inspects the passengers aboard the vessel, upon arrival from Chilean ports and inspects all who go aboard at Callao, excluding such as

he believes to have been definitely exposed to the infection of pest, disinfecting all baggage which he believes requires it. He inspects the cargo excluding or disinfecting such articles as he judges dangerous—I will say here that he has had to exclude very little. Finally the ship is fumigated with sulphur for the purpose of killing the rats, although of course this agent is to a certain extent a disinfectant for pest as well as destructive to vermin. On the voyage to Panama, which requires eight to nine days, these vessels dock at no port between Callao and Guayaquil, cargo being taken from lighters in the open bay. They receive no passengers from these ports and certain articles of cargo are also forbidden, viz: used household goods, grain and hides.

At Guayaquil they receive a second disinfection which is done by Guayaquil for her own protection but is supervised and certified to by the Public Health and Marine Hospital Service officer stationed there. The passengers at Guayaquil, in the meantime, have been inspected before going aboard and such as are immune to yellow fever receive certificates to that effect. The vessel lies in an uninfected anchorage, *i. e.* too far from the city to be boarded by infected *stegomyia*. When she arrives in Panama—vessels come direct from Guayaquil—if all are well on board and her certificates show that the above conditions have been complied with, she is admitted in free pratique without any delay. Her Callao passengers are seven to eight days out from that port and having been aboard a clean ship, have passed the length of time necessary since the last possible exposure to pest in Callao. The Guayaquil passengers with immune certificates suffer no restrictions. Those from Guayaquil not immune, being only three days out from that port, are kept under observation two more days at their hotels or boarding houses in Panama, being inspected twice a day by the Quarantine Officer. Passengers from other ports suspected of being infected with yellow fever are held under the same system of observation, both at Panama and Colon.

In every case we assure ourselves that the vessel, either by supervision of her anchorage or fumigation on leaving port, is free from infected mosquitoes and that we can therefore safely

allow the vessel to dock here and count the period of incubation of the nonimmune passengers as commencing when they left the infected port; that being the last possible exposure.

It is proposed to place medical officers, employees of the Public Health and Marine Hospital Service, aboard vessels from Callao to Guayaquil and return. With this, the restrictions against vessels can be still further reduced. There need be no bar against passengers being received at intermediate ports between Callao and Guayaquil, as these passengers could be inspected on coming aboard and the necessary precautions would be taken should any one fall sick aboard prior to reaching Guayaquil; and the facts be reported, of which we would have no information otherwise. Also the small amount of grain and hides furnished by this coast could be received on proof that it is merely in transit through the infected port. This can easily be arranged by waybills, etc., from the railroads submitted to the inspectors.

There will be shortly an isolated house with two small hospitals ready as a detention station in which we will be able to hold such passengers from Peruvian ports north of Callao as arrive here prior to the expiration of the period of incubation of pest, counting from the time of leaving said ports. Passengers requiring observation for yellow fever from Guayaquil and other points will be detained in this house also instead of observing them at their hotels, which method of surveillance, although it gives some degree of security, is not satisfactory in Panama.

A detention house, barracks and hospital for the same purpose will shortly be ready in Colon, or rather on Manzanillo Island, in an isolated position.

Plans have been made for a completely equipped quarantine station and a floating disinfecting plant and proposals are now out for the machinery. Work is not being delayed for the completion of this plant, much being accomplished in our own port at present.

It is obvious that much more is now being done by the officers of the Public Health and Marine Hospital Service stationed in infected ports by having vessels avoid dangerous anchorages,

in supervising their taking on passengers and freight, and by their disinfection in these ports than by ourselves here; although the disinfection and detention, which we would be compelled to enforce here were these precautions not taken, is what enables the officer in the infected port to carry out the prescribed measures. Indeed, the steamship agents request the above mentioned supervision and disinfection in order to avoid detention and trouble which they would otherwise encounter.

Our whole system rests upon the work done in the ports of departure and aboard the vessels by these officers. By this means we now conduct a quarantine which gives a high degree of protection with very little disturbance to commerce.

When the medical officers are placed on the vessels as is proposed, and detention houses are in operation, both of which will be accomplished by the time this is read, it will give all the protection required with extremely little interference with commerce.

It would not have been possible to inaugurate an efficient and unobstructive quarantine, with an almost total lack of facilities, except by utilizing men already trained both scientifically and in the administration of quarantine procedures. The good results obtained exemplifies the advantage of "team work" as compared with individual effort.

War is being waged against rats both afloat and ashore. The Pacific Mail Steamship Company's steamers from San Francisco and way ports along the Mexican and Central American coast are being disinfected while at the wharf here to kill such rats as are brought from the above named ports. The three steamship companies at Panama each have tenders, lighters, and hulks used as storeships. These also have been fumigated for rats and traps used on decks and a fairly complete "deratization" of all the floating craft of the harbor has been accomplished.

The Panama Railroad wharf at LaBoca where all vessels discharge and take cargo is also being rendered as free from rats as possible by the use of traps, poison, and otherwise; and this work is being done continuously, our aim being to have the harbor and docks at Panama rat free.

Contemporary Comment.

MANOEUVRES OF THE FRENCH MEDICAL CORPS.

ON the 25, 26 and 27 of June 1904 (*La France Militaire*), the manoeuvres of the French medical service were held at Limoges. On the first two days, after a manoeuvre in which both sides were represented, a field hospital was erected on the battlefield, and the wounded were treated with all modern appliances and dressings. At the close of day, the wounded were searched for by litter-bearers carrying acetylene lamps on their caps, and further assisted by three powerful searchlights.

On the 27th of June the problem was as follows: To convoy a hospital train of wounded to a railroad station, from field hospitals; to organize in this station an "overflow hospital;" and to improvise a hospital train to prevent overcrowding of the railroad hospital.

Three field hospitals left Limoges at a fixed time, to take up their assigned positions; they were met by wagon trains filled with pseudo-wounded to be dressed and loaded into ambulances and other conveyances, some of which were very ingenious. These were convoyed to a railroad station, where an "overflow hospital" was organized, together with a small "base hospital" for patients who could not bear transportation. Finally a hospital train was improvised, and the patients placed on board.

These manoeuvres were very instructive to all departments. The medical department learned to organize hospital trains; the Staff were enabled to correct some of their data concerning the time necessary for the operation and transportation of field hospitals; the quartermaster and subsistence departments learned to appreciate the importance of allowing each organization to take the initiative and give its own orders, in view of the multiplicity of details cropping up during the exercises.—S. M. DELOFFRE.

HOSPITAL SHIPS IN NAVAL WARFARE.

ON the initiative, as would appear, of the French Government, an international conference is to be held at the Hague, at an early date, to draw up regulations with regard to hospital ships in naval warfare. The chief object will be to revise existing international rules so as to leave no doubt with regard to the neutrality of hospital ships. The need of such ships in actual warfare is, of course, everywhere recognized; Japan has two hospital ships, and Russia has recently commissioned the *Orel*. Hospital ships have been commissioned on several occasions in the British Navy for the transport of sick and wounded of the army. At the present time the Royal Navy possesses only one hospital ship, the *Maine*, which, since its employment during the South African War, has been reconstructed, and is now attached to the Mediterranean Squadron. It is, we believe, found extremely useful and convenient, especially in the case of the smaller ships, such as torpedo-boats and destroyers, which have no sick-bay; patients are received on the *Maine*, and treated there, and the ship makes occasional trips to this country when a considerable number of invalids need to be brought home.—*British Medical Journal*.

THE BOER AMBULANCE TRAIN.

IN the Anglo-Boer War (J. Namar, *Tidskrift i Militar Hälsovård*) the Boers had four permanent ambulance trains to transport the slightly and more severely wounded. Each train could care for fifty wounded. The cars in which the severely wounded were transported were built in four days. The walls were made of extra thin deal. The windows could be pushed sideways; in this way every bed got the same amount of light and air. The beds were placed along the main walls of the car, separated from each other by a corridor through the middle of the car. The beds were made of elastic wire mattresses fixed to strong frames of steel tubes. They could be lifted out and used as litters. The improvised ambulance trains which were composed of freight cars with special apparatus for suspension of the litters proved to be inconvenient because of the lack of springs in the cars.—HANS DAAR.

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BRIGADIER GENERAL JEDEDIAH HYDE BAXTER,
SURGEON GENERAL, U. S. ARMY.—1890.

Editorial Expression.

The Surgeon Generals of the United States Army.

XVI. BRIGADIER GENERAL JEDEDIAH HYDE BAXTER
SURGEON GENERAL OF THE UNITED STATES
ARMY.—1890.

EVERY man has his pet ambition. Early in the life of General Baxter, he developed a desire to become the Surgeon General of the Army, and despite a series of difficulties which would have daunted a less resolute character he pressed forward for a score and a half of years until he achieved his purpose, only to have his victory turned into defeat by the strong hand of the grim reaper.

Jedediah Hyde Baxter was born, March 11, 1837, at Strafford, Vermont, to Porter Baxter and his wife Ellen Janette, née Harris. His primary schooling was received at academies in South Woodstock and St. Johnsbury and his collegiate education was acquired at the University of Vermont, where he received the baccalaureate degree in 1859.

During his college course he had also pursued some of the studies of the medical curriculum, so that, passing at once on his graduation into the Medical Department of the University, he was enabled to earn the doctorate in medicine the following year.—1860. He then extended his professional attainments by service in Bellevue and Blackwell's Island Hospitals in New York City.

War had hardly arisen in the South before he offered his services to the Union, and received a commission as Surgeon of the 12th Massachusetts Volunteers, dating from June 26, 1861. In this capacity, he served with the Army of the Potomac from July 27, 1861 until his appointment as Brigade Surgeon of Vol-

unteers on April 4, 1862, soon after which he was assigned to duty as Surgeon in charge of Campbell General Hospital in Washington, where he remained until he was selected as Chief Medical Officer of the Provost Marshal General's Bureau, a duty which occupied his attention until the completion of the work of the bureau permitted him to devote his entire time to duty as Medical Purveyor.

Upon the reorganization of the Medical Department of the regular service at the end of the Rebellion, he was on July 20, 1867, appointed by President Johnson Assistant Medical Purveyor with the rank of Lieutenant Colonel in the army to fill an original vacancy. His acceptance of this appointment ten days later vacated his volunteer commission and he now set out upon his remarkable career in the regular establishment. In March, 1872, he was promoted to be Chief Medical Purveyor with the rank of Lieutenant-Colonel and on June 23, 1874, he became Chief Medical Purveyor with the rank of Colonel. In 1865, he received the brevet of Lieutenant Colonel of Volunteers for "meritorious and faithful services in the recruitment of the armies of the United States," and that of Colonel of Volunteers for "faithful and meritorious services during the War," while in 1867 he was made Brevet Colonel in the regular establishment for "faithful and meritorious services during the War." His position in the Army Medical Department was unique, since he was the only officer in the Corps, who had entered it except at the bottom and through the established gateway of examination.

An idea of his work in the Provost Marshal General's Bureau may be gained from the two magnificent quarto volumes prepared by him on the "Medical Statistics of the Provost Marshal General's Bureau," and published by the Government in 1875. This work presents the results of the examination of over a million recruits, conscripts, substitutes and enrolled men for military service during the War of the Rebellion, and is much more than a mere collection of statistics, since it contains accounts of the recruiting regulations of other governments, an outline of the history of anthropometry, and many interesting and valuable reports from the medical officers of the Bureau. Major Baxter

not only acquired the most thorough acquaintance with the recruiting of the Union Army and the medical examination of recruits but gained a most astonishing familiarity with the individual examiners, consisting of a medical man from each Congressional district in the thirty northern states and territories. He secured photographs of the members of the Corps and had executed a collective photograph which he so thoroughly impressed upon his mind that he was able to recognize the members at any time thereafter and to call them by name. He secured from time to time a series of reports upon the topography and local causes of disease in each district, which form a most valuable feature of the work.

Colonel Baxter's work as Chief Medical Purveyor was of the highest advantage to the service. From the moment of his induction into the office, the medical supplies became more abundant and of a better quality. The amount of medical literature furnished to each post was increased and the number of medicinal agents was augmented. He believed in encouraging individual work and was quick to respond to the requests of officers desiring special instruments or agents for special researches.

During all this pressure of administrative work he found time for the active practice of his profession. He attended several of the Presidents and their families and his services were extensively utilized by senators, congressmen and Government officials. Time still dragging upon his hands he took up the study of law and after a full course at the Law School of Columbian University, he was graduated with the degree of LL.B. He was the medical attendant at the White House during the early administration of President Garfield, and considerable comment was caused by his failure to be included among the attending surgeons after the President had received his fatal injury. From the standpoint of a score of years later, it would appear to have been simply the outcome of professional competition and consequent animosity. At the time however, the feeling on the subject ran high in Washington.

He early acquired an altogether commendable ambition to become the head of the Army Medical Department. His candi-

dacy was strongly felt at the time of General Barnes' retirement; when General Crane died, his name forged well to the front; when General Murray retired he was one of the most conspicuous candidates for the succession. His candidacy caused much controversy in army medical circles. His opponents held that it would not be fair to pass over the numerous medical officers who were senior to him in length of service although junior to him in rank because of his having been appointed with the rank of Lieutenant Colonel instead of Lieutenant as had every other medical officer, and especial weight was laid upon the fact that he had come into the service without the examination which had been the test of the fitness of every other officer for admission. His friends acknowledged the truth of these facts, but argued that what had been done, had been done, that upwards of thirty years' service had shown Colonel Baxter's exceptional fitness for his work, and that he was now the ranking Colonel of the Department. He had manifested peculiar administrative ability in connection with the supply department and it was believed that he would evince the same executive qualities as Surgeon General. At the time of General Moore's retirement it so happened that these facts coincided with the occupancy of the War Secretariat by a personal friend, the Hon. Redfield Procter, and the incumbency of the Executive by a comrade and long-time patient, President Benjamin Harrison. Colonel Baxter was then promptly on August 16, 1890, appointed Surgeon General.

He came to the office familiar with the most minute details of its management and at once demonstrated his mastery of them. Nothing was too unimportant for his attention. A short time previously, for example, the writer had been refused a leave of absence upon altogether unreasonable grounds, and General Baxter had hardly assumed the chair when he wrote with his own hand a note saying that the leave would now be granted if an application were sent in. It was not long thereafter before the writer was in Washington and a guest at the delightful Baxter home on Connecticut Avenue where he had an opportunity of becoming well acquainted with the new Surgeon General both as a man and as an officer. The General was full of plans for the Medical Depart-

ment to be worked out in the seven years which would have elapsed before his compulsory retirement by reason of age. His schemes were far reaching and comprehensive and involved many details which have never been made public. The fruitage of his work was however destined to be blighted for on December 4, 1890, hardly more than four months from the achievement of his ambition he fell a victim to insidious uremic toxæmia which had long been undermining his system and which brought him down almost without warning.

Thus terminated a career, unique in many respects, the development of which was attributable to the rare personality of the man himself. Persistent and energetic, loyal to his friends and strong against his opponents, attractive and magnetic in character he rarely failed to succeed in an object which he set out to attain. Physically General Baxter was of medium height but strongly built, with clean-cut face and an agreeable manner. He was an excellent raconteur with a peculiar appreciation of the humorous. He was a typical New Englander and a loyal American.

ARMY MEDICAL REORGANIZATION.

THE Secretary of War, in his Annual Report recently submitted to Congress, remarks that "it is evident that a Staff Department, which has a personnel insufficient to perform the duties required of it in time of peace, cannot be successfully expanded to meet the increased responsibilities of war. The commissioned personnel of the Medical Department is nearly 200 short of the number required to perform its work at present, and the deficiency has to be made good by the employment of civilian physicians under contract. This is an expensive and unsatisfactory expedient in time of peace, while in time of war it heavily handicaps the efficiency of the Department. A Bill to increase the efficiency of the Medical Department was sent to Congress at its last session with my approval, it having also received the favorable indorsement of my predecessor, Mr. Root. It provides for an increase in the Medical Department from 320 to 420, so as to do away with most of these contract surgeons. It also provides approximately, the same proportion in each grade as is now given to the Medical Department of the Navy, and which the Medical Department of the Army enjoyed prior to the reorganization of February 2, 1901. While this Bill will only slightly increase the cost of the Medical Department it will very greatly increase its efficiency."

News of the Services.

Surgeon A. R. Alfred, U.S.N., ordered from Navy Yard Puget Sound, Wash. to the Navy Station, Cavite, P. I.

P. A. Surgeon J. F. Anderson, P.H.&M.H.S., delegate to meeting of the American Public Health Association at Havana.

Major A. H. Appel, U.S.A., having been found not disqualified for the military service by a retiring board, ordered to return to Manila, P. I. for assignment to duty.

Lieutenant Colonel Daniel M. Appel, U.S.A., ordered to the Philippines.

Captain B. K. Ashford, U.S.A., granted 30 days leave of absence November 23, 1904.

Captain B. K. Ashford, U.S.A., delegate to the meeting of the American Public Health Association at Havana.

Medical Director J. H. Babin, U.S.N., retired with rank and pay of Rear Admiral.

Major J. M. Banister, U.S.A., relieved from duty in the Philippines, March 21, 1905.

Lieutenant William P. Banta, U.S.A., ordered from Fort Sam Houston to the Philippines.

Lieutenant Noel I. Barron, U.S.A., died October 20, 1904 at Iloilo, P. I.

Dr. L. P. Bell, U.S.A., granted one month's extension of leave.

P. A. Surgeon F. L. Benton, U.S.N., ordered home to await orders from the Naval Station, Cavite, P. I.

Surgeon T. R. Berryhill, U.S.N., ordered from Baltimore to the Oregon.

Medical Inspector D. N. Bercolette, U.S.N., ordered to the Brooklyn Naval Laboratory.

Major W. C. Borden, U.S.A., appointed member of Promotion Board at Washington, November 18, 1904.

Major A. E. Bradley, U.S.A., relieved from duty in the Philippines, April 21, 1905.

Dr. F. D. Branch, U.S.A., ordered from Fort Ethan Allen, Vt. to Fort Wood, N. Y.

Dr. I. W. Brewer, U.S.A., granted one month's leave.

Major A. H. Briggs, N.G. N.Y., was the recipient of a testimonial dinner and a presentation saber from the hospital corps of his regiment at the recent twenty-fifth anniversary of his service with it.

Dr. John D. Brooks, U.S.A., granted one month and fifteen days leave from Fort Meade.

Surgeon C. D. Brownell, U.S.N., ordered from the Amphitrite to the Iowa.

Surgeon W. H. Bucher, U.S.N., ordered from Naval Station, Olongapo, P. I., to the Cincinnati.

Lieutenant Carroll D. Buck, U.S.A., ordered from the Louisiana Purchase Exposition to Fort Des Moines, Iowa.

Surgeon D. N. Carpenter, U.S.N., ordered from Naval Hospital, New York, to Naval Hospital, Puget Sound, Wash.

Surgeon H. R. Carter, P.H. & M.H.S., relieved from duty at Baltimore, Md.

Dr. R. P. Cooke, U.S.A., leave granted for twenty days.

Lieutenant Walter Cox, U.S.A., ordered for examination for promotion November 18, 1904.

Captain Walter Cox, U.S.A., advanced to rank of Captain.

Surgeon R. P. Crandall, U.S.N., ordered from the Oregon to the New Orleans.

Captain C. R. Darnall, U.S.A., appointed member of Promotion Board at Washington, November 18, 1904.

Dr. O. F. Davis, U.S.A., returned to duty at Fort De Soto, Fla., November, 13, 1904.

Lieutenant M. A. DeLaney, U.S.A., assigned to the attending surgeon's office in Washington.

A. A. Surgeon H. DeValin, U.S.N., ordered to the Michigan.

A. A. Surgeon H. DeValin, U.S.N., ordered to Naval Proving Ground, Indian Head, Md.

Dr. C. F. Dickenson, U.S.A., granted three months leave with permission to visit the United States.

Surgeon C. Diehl, U.S.N., ordered from the New Orleans to the Baltimore.

Asst. Surg. H. A. Dunn, U.S.N., ordered from Naval Hospital, Newport, R. I. to Naval Hospital, New York, N.Y.

Asst. Surg. J. R. Dykes, U.S.N., ordered from the Rainbow to the Naval Station, Cavite, P. I.

Major Peter R. Egan, U.S.A., relieved from duty in the Philippines, May 19, 1905.

Surgeon S. G. Evans, U.S.N., ordered to the Illinois.

P. A. Surgeon R. H. von Emdorf, P.H. & M.H.S., ordered from the Louisiana Purchase Exposition to Washington, D.C.

Surgeon A. Farenholt, U.S.N., ordered from the Monterey to the Raleigh.

P. A. Surg. A. M. Fauntleroy, U.S.N., ordered from the Lancaster to the Philadelphia.

Surgeon H. B. Fitts, U.S.N., ordered to the Buffalo.

A. A. Surgeon T. G. Foster, U.S.N., detached from the Michigan and authorized to report for examination as Assistant Surgeon.

Captain L. H. Fuller, U.S.A., ordered to Fort Clark, Texas.

Lieutenant Charles C. Geer, U.S.A., ordered before a retiring board at Washington.

Major R. J. Gibson, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Colonel William C. Gorgas, U.S.A., appointed delegate to the Pan-American Medical Congress.

General Jefferson Davis Griffith, N.G. Mo., is reported as having reached Paris on his trip around the world. The Paris New York Herald has an interview with him in which he comments upon the remarkable patriotism of the Japanese, but observes a considerable prevalence of typhoid fever in addition to many other things "which, although perhaps necessary in a great war, would have caused widespread indignation in America."

Dr. Morris J. Hansen, U.S.A., granted extension of one month's leave.

Medical Inspeicior G. E. H. Harmon, U.S.N., ordered to the New York Naval Hospital.

A. A. Surgeon B. Y. Harris, P.H.&M.H.S., resignation accepted.

Colonel V. Havard, U.S.A., sails for St. Petersburg, Russia, to represent the Medical Department U.S.A. with the Russian forces.

Dr. Melville A. Hays, U.S.A., granted one month's extension of leave.

Asst. Surg. W. S. Hoen, U.S.N., ordered from the Naval Station, Cavite, P. I. to the Oregon.

P. A. Surgeon R. E. Holcomb, U.S.N., ordered to the Cleveland.

P. A. Surgeon J. H. Iden, U.S.N., ordered from Naval Hospital, Philadelphia to Naval Hospital, Newport, R. I.

Major Francis J. Ives, U.S.A., granted three months leave.

A. A. Surgeon J. M. Jackson, Jr., P.H.&M.H.S., granted one month's leave.

Major R. W. Johnson, U.S.A., granted two months leave.

Major Richard W. Johnson, U.S.A., ordered to Fort Crook, Neb.

Dr. P. S. Kellogg, U.S.A., granted one month's leave.

P. A. Surgeon J. T. Kennedy, U.S.N., ordered from the Louisiana Purchase Exposition to Annapolis, Md.

Major L. A. LaGarde, U.S.A., appointed delegate to the Pan-American Medical Congress.

Asst. Surg. E. M. Lando, U.S.N., ordered to the Naval Hospital, Mare Island, California.

Dr. Robert Lemmon, U.S.A., ordered from Fort McKinley, Me., to Fort Du Pont, Del., for temporary duty.

Captain Charles Lynch, U.S.A., sailed for Tokyo, Japan, to represent the Medical Department U.S.A. with the Japanese forces.

Major W. D. McCaw, U.S.A., appointed member of Promotion Board at Washington, November 18, 1904.

Dr. C. W. McMillan, U.S.A., returned to Fort Myer, Va., from leave November 25, 1904.

Asst. Surg. J. D. Manchester, U.S.N., ordered from the Columbia to the Marblehead.

Lieutenant Charles E. Marrow, U.S.A., ordered for examination for promotion November 18, 1904.

Captain Charles E. Marrow, U.S.A., advanced to the rank of Captain.

Lieutenant Colonel L. M. Maus, U.S.A., leave extended twenty days November 21, 1904.

Lieutenant Colonel L. M. Maus, U.S.A., granted four months sick leave.

Asst. Surg. G. M. Mayers, U.S.N., ordered from the Raleigh, home.

Major E. A. Mearns, U.S.A., granted thirty days sick leave November 17, 1904.

Major E. A. Mearns, U.S.A., sick leave extended one month.

Dr. John N. Merrick, U.S.A., leave granted for two months.

Lieutenant R. F. Metcalfe, U.S.A., ordered to the Philippines.

Asst. Surg. H. T. Nelson, Jr., U.S.N., appointed Assistant Surgeon with rank of Lieutenant, junior grade, from November 14, 1904, and ordered to the Naval Hospital, Washington.

P. A. Surgeon E. G. Parker, U.S.N., ordered from the Buffalo to the Naval Station, Tutuila, Samoa.

Dr. O. W. Pinkston, U.S.A., granted leave for two months.

Major A. S. Polhemus, U.S.A., retired from active service.

Major H. I. Raymond, U.S.A., relieved from duty in the Philippines, March 21, 1905.

Lieutenant W. W. Reno, U.S.A., is the recipient of many compliments upon the gallantry displayed in rescuing the national flag from the roof of the burning Missouri State Building at the World's Fair.

Lieutenant W. W. Reno, U.S.A., ordered from Louisiana Purchase Exposition to Fort Myer.

Dr. H. C. Reitz, U.S.A., leave granted for one month.

Surgeon G. Rothganger, U.S.N., detached from the San Francisco, ordered home with one month's leave.

Major Charles Richard, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Dr. George H. Richardson, who entered the Medical Department of the Army September 9, 1901, and resigned January 1, 1904, is now a captain and assistant surgeon in the Sanitary Corps of the National Guard of California. He has recently been placed in charge of the office of the chief surgeon of the Division, National Guard of California, relieving Colonel A. P. O'Brien, resigned. Dr. Richardson's present address is 590 Sutter Street, San Francisco, California.

P. A. Surgeon W. Seaman, U.S.N., ordered from the Wabash to the Boston Navy Yard.

Colonel Nicholas Senn, I.N.G., will represent the Association of Military Surgeons of the United States at the Pan American Medical Congress.

Lieutenant Robert Smart, U.S.A., granted one month leave.

Captain Alexander N. Stark, U.S.A., granted two months leave.

Asst. Surg. Jacob J. Stepp, U.S.N., ordered from Navy Yard, Boston, Mass. to waiting orders.

Lieutenant V. E. Sweazey, U.S.A., granted three months leave of absence November 17, 1904.

Dr. C. W. Thorp, U.S.A., assigned to duty at Fort Ethan Allen, Vt.

Dr. S. S. Turner, U.S.A., granted four months leave from Fort Columbia, Wash., and died en route to his home.

Surgeon J. F. Urie, U.S.N., sick leave extended three months.

Lieutenant James W. Van Dusen, U.S.A., granted one month's leave.

Lieutenant E. B. Vedder, U.S.A., ordered to the Philippines.

Surgeon L. L. von Wedekind, U.S.N., ordered from the Cincinnati, home.

Asst. Surg. U. R. Webb, U.S.N., ordered from the Naval Station, Cavite, home.

Surgeon C. P. Wertenbaker, P.H.&M.H.S., delegate to meeting of the American Public Health Association at Havana.

Surgeon W. W. Wheeler, U.S.N., granted sick leave for three months.

Act. Asst. Surg. C. K. Winne, U.S.N., ordered to Naval Hospital, Norfolk, Va.

Captain R. S. Woodson, U.S.A., ordered to Hot Springs, Ark., for treatment.

Dr. Stephen Wythe, U.S.A., granted one month's extension of leave.

Asst. Surg. R. M. Young, U.S.N., ordered from the Oregon, home.

BOOKS RECEIVED.

General Catalogue of Medical Books. 24mo. pp. 109. Philadelphia. P. Blakiston's Son & Co., 1904.

The Physician's Visiting List for 1905. 24mo. Philadelphia, P. Blakiston's Son & Co., 1904.

The Houseboat Book. The Log of a Cruise from Chicago to New Orleans. By William F. Waugh, M.D. 12mo; pp. 210. With numerous full page plates. Chicago. The Clinic Publishing Co., 1904.

Physicians' Pocket Account Book. By J. J. Taylor, M.D. 16mo; pp. 200. Philadelphia, Pa. The Medical Council, 1904.

A Compend of Medical Latin. By W. T. St. Clair, A.M. Second edition. 12mo; pp. 131. Philadelphia. P. Blakiston's Son & Co., 1904.

How to Study Literature. A Guide to the Intensive Study of Literary Masterpieces. By Henry A. Heydrick, A.B. Third edition. 16mo; pp. 151. New York, Hinds & Noble, 1904.

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

A MEDICAL RESERVE CORPS FOR THE ARMY OF THE UNITED STATES.

BY MAJOR AZEL AMES,

LATE BRIGADE SURGEON OF UNITED STATES VOLUNTEERS AND
FORMERLY ACTING ASSISTANT SURGEON IN THE UNITED
STATES ARMY.

THE Medical Department of the Army of the United States confronts a crisis. Always too weak in numerical strength and resources for the duties devolving upon it, these have never been increased proportionately to the work it was expected to do,—even in time of peace. The Militia of the several States, when mustered into the United States service in time of war, furnishes only the medical staff requisite to its component regiments and batteries. The grand deficit always existing in the number of surgeons imperatively required by an army in the field, has hitherto been made good from the only available source, viz:—the medical profession in civil life,—chiefly in the capacity of the Acting Assistant Surgeon, under a revokable “contract.”

The anomalous and unjust position of the Acting Assistant Surgeon, under the “contract system,” whether in peace or war, has long been recognized by all just men, in the Army and out, and has often been portrayed. Protests and efforts at relief have been many but fruitless. A recent decision of the Judge Advocate General of the Army has officially fixed the *status* of the Acting Assistant Surgeon as that of a “civilian” only, and is technically logical, though sadly humiliating and unjust to the man, and dis-

graceful to the country he has so honorably served. As such "civilian" he is, of course, without any possible shadow of authority, and hence can no longer be of use to the Army, respect himself, or be respected, while holding a "contract."

During the civil war there were 5,532 Acting Assistant Surgeons; during the Spanish War over a thousand; some hundreds have served in the Philippines; and there were recently 230 still in the service. In the five years after the Spanish War there were 1,604 appointments and 1,512 discharges of "contract" surgeons.

That this body of men must now drop out; that no others of reputable standing and self-respect, could, if desired, be recruited from civil life under present humiliating conditions, to take their places, and that certain radical changes to secure efficient substitutes for the "contract" surgeons, are *imperative*—(especially with an eye to very possible future wars), are self-evident propositions.

The very climax of the wrong done the "contract" civil surgeon of the Army, compels the recognition and commissioned rank for his successor, so long denied him, but which he ought always to have had

The Surgeon General of the Army has recently officially declared,—in sharp contrast to the attitude of his office but a few years since, that,—“It is the common experience of all military nations that physicians serving with troops cannot properly perform their administrative duties or fittingly maintain the dignity of their position without military rank.”

Major Borden, of the Army, recently speaking as the representative of the Surgeon General, at Atlantic City, declared that:—“The contract” surgeon if worthy to do the work of a commissioned Army Medical Officer, is worthy to have a commission.”

Verily,—“The mills of the Gods grind slowly, *but they grind!*”

But, it is conceded by all, that, however excellent the *personnel* and professional skill of the surgeons who take the field with troops, fresh from civil practice, but without due training in the practical duties and requirements of military medical officers, they are seriously hampered and limited by this very lack of special preparation.

All thorough men—especially those responsible for results—have long realized the necessity of a uniform higher and better training, both scientific and practical, for all the factors of the Medical Corps of the United States Army,—whether upon its Peace or its War footing.

The chief means to this end, as recognized in the Armies of other advanced nations—an Army Medical School—as exemplified in Great Britain, Germany, etc.,—has, with us, hitherto lacked, not only the general and personal interest and moral support of the great medical profession of the Nation and of Congress, but also a proper *clientele* or student-body, that would warrant its maintainance on such a plane as would be duly effective, and on such a scale as would comport with our National and professional standing, dignity and pride.

The small Medical Corps of the Regular Army,—with its infrequent changes of *personnel*—would, of course, require for itself, but a small establishment of this kind, and its own special instruction therein would soon be accomplished. The medical officers of the Militia of the United States (The National Guard) have never had, until very recently, such relation to the Regular Army in time of peace, as to be eligible to the advantages of its Medical School, while the Acting Assistant, or “contract,” Surgeon has held only a paradoxical, temporary, busy, and (usually) brief, connection with the service. The Medical Officers of the Militia of all States that have accepted the Army Reorganization Act are now eligible to such U.S. Army Medical School as may exist, but will not largely avail themselves of this advantage at the attendant inconvenience and cost.

Hence nothing is more certain than that an Army Medical School is, today, a great need of the Nation and of the medical profession both of the Army and of civil life; that such a school cannot be and do what it should, without an adequate support, moral and material, from the Country and Congress,—and that *it must have a proper student body*. It is also clear that the Medical Staff of the National Guard *needs*, and the great volunteer contingent from civil practice, (always inevitably called upon in time of war), *should surely have*, the sound, uniform training which only such a School can properly give.

Hitherto, any effort to properly train and fit the great volunteer body of the to-be medical staff of the Army, for actual military service (except medical officers of the Militia) has been obviously, utterly impossible, simply because it could not be known in advance, who, in civil practice, in any community, would respond to a call of the Government for medical service with the forces, in the event of war.

Recent Congressional action reorganizing the Army, has put it closely upon the more effective basis of the best armies of Europe, with their first and second lines of "Reserves." The United States Army needs however, a far better organization of its Medical Department than now exists, upon the "three line" basis, including a "Reserve."

Of these lines the medical staff of the Regular Army would, of course, form the *first*: that of the Militia (National Guard) the *second*; and a new body,—(to replace the old unknowable and unorganized volunteer "contract" contingent,)—A Medical Reserve Corps of the United States Army,—should be the *third*. The details of this outline will be further considered hereinafter.

Under substantially this organization, given an Army Medical Reserve Corps, an Army Medical School of the highest character and scope—worthy alike of the Nation and the profession of medicine,—duly empowered, and the systematic, competent, *uniform* training of the entire Medical Corps of the National forces in each of its three "lines," could go steadily forward, to the inestimable benefit of Humanity, the Nation, the Army, and the Medical Profession at large.

It is evident then, that the *prime* factor of the foregoing outline is the suggested Medical Reserve Corps, an organized, responsible body of picked men in civil practice, duly under commission as officers of the "Reserve" list of the Army, (but not under pay, except when transferred to the "active" list). A most excellent substitute, as all must agree, for the patriotic and devoted, but unknowable and untrained host of civil-surgeons under "contracts" or "drum-head" commissions, upon whom, in emergency, the Nation must otherwise rely. Such a Corps, distributed with substantial evenness, throughout the States;

tractable and teachable because known, located, organized and amenable, would constitute the main student-body of the Army Medical School, a body subject to change but with its numbers always full, and would bring the medical men of the Army, of the Militia and of civil life into closer, yet broader, community of interest and mutually helpful work.

The *second*,—and almost equally important—chief factor of the suggested outline, is clearly a competent Army Medical School, which, properly a part of the Medical Department of the Regular Army, would fittingly determine and disseminate the especial uniform instruction and training, requisite to similarly fit all members of the Medical Corps, of all grades and in all its lines,—Regular, Militia, or Reserve—for the duties they are likely, or at least liable, to be called to discharge.

It is therefore evident that the prime necessity to establish these factors is the requisite action of Congress to properly constitute and empower such a Medical Reserve Corps and such an adequate Army Medical School, and to put these two into their proper relations to each other to the Medical Department of the Army, and to the profession at large.

The *third* chief factor of the outline sketched, is the *method* whereby the other two chief factors are to be brought into effective relation and co-operation. It is obviously impossible for the young and busy civil practitioner to leave his practice, or to be at large expense, to attend an Army Medical School at Washington, Fort Leavenworth, or elsewhere. It *is*, however, entirely practicable to employ the "correspondence method" of instruction and examination (utilized with such eminent success by the University of Chicago, the Engineering School at Scranton, and certain other commercial and scientific Institutions), between the school and the student-officers of the Medical Reserve Corps, for such preliminary examinations and periods, courses, special instruction, and subsequent examinations, as shall be, from time to time, determined by the Surgeon General of the Army. The "correspondence system" and its results have already received the high approval of several Departments of the Government. It is moreover, suggested, that to the ten per cent of the Corps

receiving in any year of study, the highest marks upon their written examinations, "Traveling Scholarships" shall be given for one month, (as officers of the "active list" of the Army, under pay and with travel-pay and emoluments), under "orders," to enable them to visit the Army Medical School at Washington, Fort Leavenworth, or such other Army Headquarters, or Posts, as may be most conveniently designated, for the purposes of personal instruction, observation, etc. By these means the entire Reserve Corps will be under the careful, exact and uniform instruction, examination and stimulus of the Army Medical School and in constant relation to it, to the Surgeon General's Office and the War Department, as to forms, papers, discipline, ambulance work, hygiene, and other military duties, thereby acquiring full and competent training for actual medical service with troops in the field.

Briefly summarized:—it is proposed to create a "Reserve Corps," of the Medical Department of the Army and under its control, to consist of such sufficient number of civil practitioners as Congress shall determine (from 2,000 to 4,000), graduates of reputable medical colleges, from twenty-one to fifty years of age, (to be appointed equitably from the Congressional Districts) to be commissioned by the President of the United States to serve for five years (but eligible for reappointment), and duly mustered into the service as Assistant Surgeons of the "Medical Reserve Corps" of the United States Army, with the rank (and with the pay and emoluments when ordered upon "active" duty) of a first Lieutenant, mounted, but to serve without pay or emolument at all other times,—except such provision as shall be made for free instruction and examination in the duties of a military surgeon, by the Army Medical School, through the "Correspondence system," or other means.

To secure the highest type of young and middle-aged civil practitioners for this Corps, free from undue political influence or favoritism, it is proposed that every practitioner so commissioned shall have first been selected and approved (as to character and physical and mental fitness), by a Board composed of the Surgeon General of the Army; the Surgeon General, (or

highest medical officer) of the candidates' State, and the member of Congress in whose district he resides, or their representatives. In every case the applicant to be endorsed as to his moral and professional qualities by some reputable medical society of his County or State. In time of peace, such Assistant Surgeon of the Reserve Corps to be utilized to the benefit of the Government at forts, arsenals, posts, etc., whenever to the mutual advantage of the Government and Army and himself, and in emergency, or war, to take service on the "active" list, temporarily, according to need, with the right to resign if continued service would be prejudicial or injurious to his civil interests, or to waive service in favor of others of the Corps, with the approval of the Surgeon General.

Such an officer would be, not only all that the Acting Assistant Surgeon was, but far more; because, *first*;—he *would be an officer, de jure* as well as *de facto*; *second*;—he would be especially trained for the duties of a military surgeon by the Army Medical School, in uniformity with the medical officers of the Regular Army and of the militia; *third*;—he would be "the pick" of the profession in civil life, morally, physically and mentally, with just as much, and no more, liberty as to active service, as the Acting Assistant Surgeon had, to go or stay.

The general outline for a Medical Reserve Corps of the Army, substantially as just sketched, was submitted by the writer in October last, to Major Borden of the Army, who greatly improved it by suggesting that the members of such Corps be given, *ab initio*, the commission of Assistant Surgeon with the rank of first Lieutenant, instead of the grade of Medical Cadet on entry, and the commission of Assistant Surgeon when called to active service, as originally proposed by the writer. Naturally, after years of effort made by him and others, to secure commissioned rank for the civil surgeon in the Army service, this suggestion was especially gratifying, although the conditions created by the recent decision of the Judge Advocate General *had rendered absolutely necessary* the commissioning henceforward, of all auxiliary surgeons of the Army from civil life.

The writer's original outline, which comprised as its three equally essential factors, a Medical Reserve Corps, picked from the civil practitioners of the whole country; an Army Medical School, of scope and authority to instruct the members of the Corps in their distinctive duties as medical officers; and the so-called "Correspondence method" of instruction and examination, as the means of communication between these two, was duly submitted to the Surgeon General of the Army and after examination received his cordial general approval. Indeed, it was freely admitted that the question of how to obtain substitutes for the emasculated "contract" surgeon had become a serious and anxious one for the Medical Department of the Army and the plan proposed was hailed with much cordiality, as affording an apparently happy and practicable solution of the grave problem.

That it *will* afford such solution—given due and friendly legislation, organization, and conduct—there can be little doubt. Its inherent difficulties are chiefly, seemingly, only those of detail, which a high and broad purpose, experience, and later legislation (as indicated by that experience) will readily remedy.

But graver difficulties and changes which have developed and attached themselves to the proposed plan, in its passage through the Surgeon General's Office and the War Department, to and through the Military Committees of Congress, are of most serious importance, and challenge the most careful consideration of every man whose fealty to the Country, the Army and its Medical Staff, and to the Medical Profession at large, is what it ought to be.

It has, as will be generally recognized, always been the complaint of the War Department, and especially of the Surgeon General's Office—and not without justice—that the chief defect in the volunteer contingent of medical men who came fresh from civil practice to the Army—whether with or without commissions—was its lack of knowledge and skill in its distinctively military duties and notably in military hygiene.

Again and again has this lack on the part of volunteer surgeons, of all grades, been urged by administrative officers of the Army, as a reason for the increase of the Regular Staff,—though

not always justly, or in good taste, in view of the fact that some of the finest achievements along these very lines have been accomplished by these volunteers and despised "contracts." It is well to bear in mind that again and again, the fact has been officially deplored by the Surgeon General's Office, that the volunteer and Acting Assistant Surgeon had not the requisite preliminary training for immediate efficiency in service with troops, and that, worst of all, such preliminary training was *impossible*, simply because it could not be known in advance of a call to take the field, who of the medical profession in civil practice, would respond. It will be said that either this was a sound and honest criticism, or it was not. To the writer's mind it was *both*. It is obvious that the defects of the "green," though professionally able, surgeon, from lack of military experience, even if not as great as sometimes pictured, were and are considerable,—and the criticism in so far was just. It is equally true that the emphasis laid upon these defects, and their exaggeration, were not infrequently made to do duty as special pleading in behalf of the dignity, welfare, importance, *and especially the increase*, of the Regular Medical Staff—in so far they were disingenuous.

The facts remain—plain, pertinent and insistent:—first; that in the event of war, a Republic—wedded to the principle of no large standing armies—must rely always upon the skill, patriotism, and devotion of the great medical profession in civil practice for the auxiliary surgeons of its Army Staff, and second, that—for best results—this great volunteer contingent of civil surgeons, should, if possible, have preliminary training for the field duties to which they may be called.

The plan—the *system*—I have outlined, makes the training, so seemingly impossible, in the past,—*both possible and practicable*.

Said Major Borden, at the Boston meeting of this Association in 1903—"*In view of these facts it becomes a self-evident proposition, that, unless a Doctor of Medicine has supplemented his training for the profession of medicine and surgery, by studying the duties of a medical officer, he will be unable to properly and efficiently perform these duties when he first enters the ser-*

vice, and if he does not receive adequate training before or at the time of his entrance into the service, it will be only a costly experience, often to the discredit of himself and the service, and of incalculable injury to the Army, that such training is obtained." Nothing could be more definite, positive or truthful than this.

We may then, from this and other recent utterances of like tenor, bearing official or semi-official stamp, rightfully hold the facts thus stated to be sound and basic, as affirmed by highest authority. We have a like right to infer that they will be binding upon the judgments, consciences and acts of those who proclaim them as fundamental.

It is hence with the keenest regret that the writer notes and earnestly protests, the grave and radical changes which have been engrafted upon the original outline proposed, to its great undoing, as they find expression in the "Bill to increase the efficiency of the Medical Department, United States Army," drafted by the Surgeon General's Office, and with the approval of Secretaries Root and Taft, laid before Congress as Senate Bill 4,838 and House Bill 13,998.

The regret is keen because this Bill, though doubtless unfailingly just and liberal to the regular army medical staff, its needs and desires, and carrying the approval of the Secretaries—according to the lights lent them by those interested—sadly fails in the presence of the first great opportunity, to do that plain and palpable justice to the needs and rights of the Country, the Army and the Medical Profession, which the Surgeon General and his spokesmen have, as quoted, only so recently proclaimed, and to which all just men had hoped the Medical Department of the Army had at last awakened.

The regret is keen because the Bill tells, all too plainly, of broken faith, lowered standards, the desertion of high and broad principles and the subordination of high and broad ideas and great opportunities, to less worthy, narrow and personal considerations, and breathes anew the old typical, dominant spirit of Bureauocratic, dogmatic self-seeking and self-assertion.

Alert and careful as the Bill is, in every line, for the far less-important interests of increase in number, rank, pay, etc., of the

officers of the regular medical staff, the *only effort* it makes at meeting the great, imperative, paramount needs of the Nation, and the Army, for a competent and fittingly trained auxiliary body of civil surgeons, and of justice to them and the great medical profession, finds sole expression in provision for an *unlimited* Medical Reserve Corps, *to be, as to its personnel, etc. wholly the creation and creature of the Secretary of War—in reality, of the Surgeon General, alone.*

A body of such alarming possibilities as to size, pervasiveness, opportunity and activity in the political or personal interests of its chief, or of those for whom he might invoke its allegiance and labors, vividly recalls the dread of the great "Father of his Country" of the cabal-breeding tendencies of standing armies. Such a power as that proposed, lodged in the hands of a Bureau Chief of the War Department, is greater than that vested in the President of the United States, and *might* be used with tremendous effect, for ends wholly foreign to its true purpose.

Sec. 7, of the pending Bill, which contains the gravamen of its constructive features, reads as follows:

"That for the purpose of securing a reserve corps of medical officers, available for military service the President of the United States is authorized to issue commissions as first Lieutenants therein to such graduates of reputable schools of medicine, citizens of the United States, as shall from time to time, upon examination to be prescribed by the Secretary of War, be found physically, mentally and morally qualified to hold such commissions, the persons so commissioned to constitute and be known as the medical reserve corps. The commissions so given shall confer upon the holders all the authority, rights and privileges of commissioned officers of the like grade in the medical corps of the United States Army, except promotion, but only when called into active duty as hereinafter provided and during the period of such active duty. Officers of the medical reserve corps shall have rank in said corps according to date of their commissions therein and when employed on active duty as hereinafter provided shall rank next below all other officers of like grade in the

United States Army: Provided, That contract surgeons now in the military service, who receive the favorable recommendation of the surgeon general of the Army, shall be eligible for appointment in said reserve corps without further examination."

A careful analysis of the Bill, and its seemingly rational and innocent phraseology, will establish beyond question, that the intent is—and it is conceded—to permit the Surgeon General on such examination as the Secretary of War—of course by and through the Surgeon General—shall prescribe, to recommend to the President for commissions, *all* such graduates in medicine *as he shall see fit*, their number, fitness, location, etc., being practically, *wholly*, under his individual control.

To this loose, indeterminate, *unlimited* extraordinary feature one is compelled, alike from patriotic and prudential motives, to strongly dissent and protest.

A proposition for an unlimited body of first Lieutenants of the Army, under Presidential commissions, to be created, practically, at the *dictum* of one man, will naturally alarm Congress, the press and the people, while it cheapens the value and desirability of appointments therein, to the most competent and desirable young men. The control of these *unlimited* opportunities by a single official, without any actual legal check upon him, such as the scrutiny of the Senate upon Presidential appointments,—is repugnant to safe and established policy, while it affords wide opportunity and power for the exercise of personal preferences or animosity, for or against sections or individuals, to the detriment of the whole and is repellent to every idea of right. Again, it is plain that in a matter affecting the whole country and the entire profession of medicine, there should be some better and surer provision for the just and equable recognition of all parts of the country and all professional schools and associations that can present reputable men.

The avowed desire and purpose of the Surgeon General to take *all* such men as desire appointment in the Reserve Corps, as are satisfactory to *him* alone, without associate examination or approval by, or any recognition in such choice of the great professional body in civil life, from whom they must come, or of

any other local professional or political sponsorship,—is such painful reassertion of the old-time self-sufficiency and autocracy of the War Office and its Medical Department, in matters directly and intimately concerning those ignored, as has been so regrettable, offensive and injurious in the past, and it had been hoped, was, under a new *régime*, to disappear.

The recognition of the several State military medical chiefs and of the members of Congress as to appointments in their respective districts,—if only to enlist the active interest of the latter—would seem to be alike just, courteous, politic and wise.

That the latter would lend any undesirable political bias to such appointments is negatived by the facts related to present appointments to West Point and Annapolis, nominally made by members of Congress, but actually made, in nearly all cases, upon competitive examinations arranged by them, without personal interference and without political, personal or race consideration.

In view of the many recent earnest declarations of the Surgeon General, and those speaking for him, as to the grave military deficiencies of even the most capable medical men in civil life, and the positive assertions quoted herein, of the absolute necessity of preliminary special training for this civil contingent, if we are to prevent the grave results predicted by Major Borden, one is "sore amazed" to find not only that the Bill in question contains no provision for *any* instruction for the proposed Corps, *but that none is contemplated, or even desired*,—as we shall see.

Hence one is quite in sympathy with the very pertinent and pregnant question of Chairman Hull of the House Committee on Military Affairs, to the Surgeon General in reference to this Bill:

"What advantages does it add to simply issue a commission to the graduate of a medical school, and wherein would he be superior in case need for his services should arise in time of war, to the civilian physician who was not so commissioned? Where does he get any of this special education?" The replies of the Surgeon General were unsatisfactory and the Chairman continued:—

"They would be superior if you put them in post-graduate schools and trained them specially, but you do not take them

here and give them a post-graduate course, and give them instructions in camps and discipline, and all that."

To every thinking man the objections of Mr. Hull are pertinent and sound. They were no less so, but a few months ago, to the Surgeon General and his associates. Why this change? Why this remarkable evasiveness with the Military Committee, even when *prompted* to make provision for the education of the proposed Corps, and what is the *animus* of the following remarkable statement, recently received by the writer from Major Borden, who undoubtedly speaks the mind of his superior in the matter, if not directly authorized thereto? He says, under date of Sept. 30th :

"In regard to the use of the Army Medical School for the instruction of the Medical Reserve Corps, *it has never been the intention of the Surgeon General, nor anyone in his office, to use the school for such a purpose.** The law now provides that the school should be used for the instruction of Regular Medical Officers and such organized Militia as may be sent to the school by order of the Secretary of War. It is the intent of this Bill [The existing law presumably], to give these officers and these officers *only*,* a technical military-medical education."

It seems pertinent to remark that the law can, and *should* be amplified, if necessary, to extend the benefits of the school to the *largest division* of the Army Medical Staff—the civil surgeon contingent—especially if commissioned officers of the Reserve Corps.

Major Borden resumes;—"The Medical Reserve Corps is to consist of qualified professional men, who would be qualified to do *professional* work when the service demanded. It seems to me that to attempt to educate the Medical Reserve Corps into Medical *Officers* and to give them a knowledge of all the technical duties which Medical Officers are called upon to perform, would be too colossal a task, and would involve too much expenditure of time and money. Neither do I think that Congress would look favorably upon such a scheme, because as they are well qualified *professionally*, they would be able to look after

*Italicizes the writer's.

the sick and wounded under the general direction of the officers of the regular and volunteer establishments who hold executive positions.

"I must say that the more I think of it the less I am impressed with the desirability of instructing or educating the Reserve Corps after it is created, by sending them to school or by correspondence methods. So long as they are qualified professionally, as shown by their having passed the requirements, I do not think Congress will be inclined to spend money in educating them in technically military-medical matters."

One needs to take a long breath after this most extraordinary statement, which lays bare the real desires, purposes and intents of the "small oligarchy"—as one journal calls it—which purposes to thus establish itself in the sole direction and control of the administrative affairs of the Medical Corps of the Army. It is needless to say that against such a plan every self-respecting physician, lover of his country and his profession, will steadfastly and earnestly array himself, while life and reason last. To deliberately create a body of inferiors to perform subordinate labors, and to designedly keep that body ignorant of other duties that a select few may retain command, savors intolerably of stigma and servitude.

One hardly knows where to begin the dissection of this pronunciamento, —and but for the well-known and insatiable hunger of the Bureau Chiefs of the War Department for more power, one would be at a loss to understand the change of heart which has come over men who, but a few months ago, were insistent, for the better military education of the civil medical contingent of the Army.

Content, apparently, with the hope of the grand accession to the dignity of his position,—in the available force to be placed at his command by the creation (practically at his pleasure, as to numbers, *personnel*, location, etc.) of the great *unlimited* commissioned Medical Reserve Corps he proposes,—the Surgeon General has seemingly quite forgotten and has put under his feet as of no consequence, his late earnest protest as to the abso-

*Italics the writer's.

lute need of rank and preliminary training for civil practitioners, who enter Army life.

It is but fair to ask,—*Have the conditions changed?* Or, is this plain purpose to kindly permit the medical men of the Country, however able or distinguished, to come to the help of the Medical Department of the Army purely as attendants upon the sick and wounded, under the orders of some unfledged Assistant Surgeon of Volunteers, *going to change* all the hard, obstinate and unyielding facts and features of Army life, and produce an Elysium of Service?

Let us examine in detail, this statement of Major Borden, in which, though unofficial, it is fair to assume he voices the views of his Chief, the Surgeon General, whose peculiar attitude before the House Committee on Military Affairs, it also, at last, makes clear.

Because the civil practitioner usually lacks certain knowledge desirable in a military surgeon—although it is proposed to make him a medical officer of the U.S. Army, "*with all the authority, rights and privileges of commissioned officers*"* of that Army, (I quote the exact language of the Bill)—it is proposed to *keep* him ignorant of what it is conceded *he ought* to know, and *it is hence considered undesirable to educate him!*

Instead of teaching him what he *ought to know* as a medical officer of the Army, to properly fill the position and most efficiently discharge his duties, it is proposed to *keep* him ignorant, and *because he is so*, to deprive him of the "authority, rights, and privileges" of a medical officer of his rank (which the Bill expressly says shall be his) and to utilize only certain abilities he is presumed to possess. Is the Bill wrong in its language as quoted, or is the proposal to thus degrade and humiliate the officer after he is made such, *wrong*? Is the Officer of the Reserve Corps to be made to repeat the humiliating experiences of the Acting Assistant Surgeon? The reason for all this is not far to find.

It is an open *declaration*, that it is the desire and purpose to arrogate to the Medical Staff of the Regular Army, and to certain

*Italics the writer's

of their associates of the volunteers, the entire direction and control of the executive and administrative functions of the Medical Department of the Army in the field, and to kindly assign to the Assistant Surgeons of the proposed Reserve Corps—whom it is hence not worth while to instruct in the duties of military medical officers,—*only the professional duties incident to the care of the sick and wounded, and to limit them to a service which, in the intent and manner of its assignment, would be grossly invidious, and practically would be servitude, if it were practicable.*

We are informed too, that the Army Medical School, though created by the People, paid for by the People, and designed for the instruction of the Medical Officers of the Army of the People, will *not* be utilized for the education and benefit of any save a few chosen servants of the People who hereby assume to say what their masters, the People, shall do with their own.

But it will be of interest to know what the Medical Profession will have to say to this contumelious cavalier disposition and relegation of their services, by the handful of their number to whom, for the time being, administrative authority in the Medical Department of the Army has been entrusted.

Does anyone doubt what sort of response the call of the Surgeon General upon the Reserve Corps, or the medical profession, in time of need, will receive hereafter, when men of large and lucrative practices and professional repute,—the men the soldier wants,—are asked to abandon their interests and homes to serve in the field,—*to serve without even the dignity and responsibility they enjoyed as Acting Assistant Surgeons under "contract," nor as the equals of sometimes younger and less qualified militia officers of the same rank, from their own States?*

One need not be a prophet to foresee that the better and most desirable men in civil practice will promptly decline service under conditions so frictional, invidious and humiliating, and that even the possibility of a Reserve Corps is seriously jeopardized thereby.

While it may be true that in certain countries, like Russia, maintaining large standing armies *and having, in time of peace, no organized Medical Corps*, a dual system of government satis-

factorily exists in the great military hospitals in time of war,—the one administrative, the other professional,—such an arrangement would be utterly impracticable with the large volunteer forces of Republics, and is even of doubtful advantage abroad.

No one of large experience in actual field or hospital service with the Armies of the United States would dream of a scheme at once so wholly impossible and unjust, so hopeless of uniform application and so little short of insulting to the intelligence of those upon whose favor the auxiliary medical service of the Army *must* always depend.

The medical profession and the people of the United States and their representatives the civil practitioner in temporary auxiliary service are not yet ready for the creation of a medical "Cobourg" in the camps and hospitals of their Army—whatever may exist elsewhere.

It would be interesting too, to know what the Army Medical School is for,—after it has "ground through" its little grist of the younger officers of the regular staff, and the very few score medical officers of the National Guard, who may be able and willing to seek its instruction. It cannot "grind them through again," and like Othello its "occupation" will be "gone" save as it may afford coveted place and honors for a few favored officers who are assigned to its scientific work. Such an establishment must speedily die of "dry-rot" if it escapes the irreverent and destructive hand of the practical law-maker—having no sufficient student-body, and hence no warrant for its existence—certainly none for the costly and narrow one proposed.

Congress is not unaware of the comparative values and importance to the Country, to the Army and to itself, of the great body of the medical profession in civil life and of the handful of men who constitute the medical staff of the Army, a staff which would be utterly paralyzed in time of war without the succor afforded by this great body of the civil profession. It has never hesitated to provide the necessary means to improve and make effective the care of its soldiers, and there is no reason to doubt, as Major Borden does, its readiness to authorize and liberally support *whatever* may be *needful* to make *most honorable, effi-*

cient and competent, the service of a proper Medical Reserve Corps for the Army.

With such a Reserve Corps as is proposed (say of from 2,000 to 4,000 men) under pay only when upon active duty, the cost of maintainance need not be great, while careful study of the subject proves beyond doubt, that its especial instruction in its distinctively military requirements by the "correspondence method" would neither be "a colossal task," or "involve any great expenditure of time and money," as argued by Major Borden. Its curriculum would be a limited one, and the Army Medical School might, and should, be readily adapted to the work of instruction and so justify its existence, and enlargement.

By this "method" which lack of time forbids to more fully consider here, competent instruction and examination can be rapidly, effectively and inexpensively given, all over the Country, without publicity, or the necessity of disturbing the regular work of the busy practitioner. By these means the officers of the Medical Reserve Corps may be speedily made as proficient as lack of actual field work will permit, *in all the multiple duties of which the Army Surgeon MUST AND WILL,—under any scheme of organization,—be inevitably, and wisely called upon to perform, in the future, as in the past. No such sub-division of duties as that proposed is desirable, practicable or possible!*

In conclusion, the writer firmly believes that the *People* of the United States; the *Press*; the *great Medical Profession of the Country*, and the *Congress*, will emphatically disapprove of:—

An *Unlimited* Medical Reserve Corps for the Army, with its grave possibilities for evil:

Its practical creation and control by a single official of the Army:

The exclusion of all associate authority and sponsorship—local or general, professional or official—in the selection of its members.

The exclusion of all provision for its equable and equitable selection from all parts of the Country:

The maintainance and exclusive use of the Army Medical School for a favored few only:

The rejection of all means and efforts to instruct the proposed Medical Reserve Corps in its Army duties, with the purpose of keeping it in an inferior position—and

The proposal to arrogate to the regular and volunteer medical staff, *exclusively*, the exercise of all administrative and executive duties and functions of the Medical Department of the Army, assigning to the Assistant Surgeons of the Reserve Corps, professional duties only.

A careful study of any and all of these propositions, cannot, the writer believes, fail to result in their condemnation as unpatriotic, dangerous, unjust, unwise, impracticable and arrogant.

Hence it is believed that the sound, just, practical, sober sense of every friend of good government, on broad lines; of efficiency in the service; of due honor and respect for the medical profession, and of justice, and decent regard for others in the administration of public affairs, will impel him to lend his aid for the defeat of propositions so indefensible, and in support of the better methods so readily attainable and herein suggested.

The establishment of a *Medical Reserve Corps for the Army of the United States*, substantially upon the lines suggested in the early part of this paper, with the *rationale* therefor,—*will, it is believed, meet effectively, the real and pressing needs of the Country and the Army* for such a Medical Auxiliary body as is requisite and will commend itself to every fair-minded student of the subject.

DISCUSSION.

LIEUTENANT COLONEL JOHN VAN R. HOFF, U.S.A.—I arise to discuss this paper hesitatingly, not as one with authority, nor one with much beyond a general knowledge of the matter.

Major Ames' essay, beneath its elegance of diction, for which its author is so well known, seems to be a more or less direct attack upon the Surgeon General of the Army, and an indirect one on the Medical Corps, of which I have the honor to be a member, and I can not permit its reference to the publication committee, without remark.

MAJOR AMES—I hope Colonel Hoff will pardon me when I say it is wholly on impersonal reasons.

LIEUTENANT COLONEL HOFF.—I have no right to speak for the Surgeon General, his representative here can do that, but I believe it my duty to

speak in defense of my own corps, which is accused of an attempt to aggrandize itself at the expense of the profession at large.

I am quite sure such is neither the intention of the bill for the reorganization of the Medical Department of the Army, now before Congress, nor the desire of the Medical Corps.

What Major Ames says, and well says regarding the status of contract surgeons is true and, as I understand it, one of the objects of the bill is to change this status. In fact the correspondence with Major Borden, of which I know nothing except what was presented here today, indicates that the bill, if it becomes law, will do exactly what Major Ames claims should be done; viz: give the present contract surgeon a definite and well defined official position, in a word, a commission.

I believe it has been the desire and effort of every medical officer of the regular establishment to do this very thing. Major Ames may recall that while he and I were serving in Porto Rico I wrote a letter to the Surgeon General recommending that all contract surgeons be commissioned. He may not know that the very beginning of the Spanish-American War I addressed the Surgeon General expressing the hope that during that war there would not be a "Contract" Surgeon in the Army; if we needed medical officers and we certainly would, that they should all be commissioned, exactly as would be the Quartermasters, Commissaries, Judge Advocates, Adjutants and Inspectors General, *id est* genus omnes who were appointed from civil life by the score and hundred.

If we can go into the highways and byways and hire medical officers at \$150 per month, why then not hire Quartermasters or Commissaries, or Adjutants General, or Inspectors or Judge Advocates as well, for a commission is no more necessary in the one case than the other, and the standard of military experience was certainly no higher for the commission than the contract.

Unfortunately we were content to continue the method handed down from previous generations and employ civil physicians under the unnecessary, unsatisfactory, and to them disagreeable, contract. Let us not have "contract" surgeons, the name is hateful, let us insist that every physician who serves the army as an officer, be given an officer's standing, which can only be accomplished by commissioning him.

Regarding the question of a reserve corps, I am unable to speak authoritatively, but I believe such a reserve to be very desirable. Physicians with knowledge of medico-military methods may be of untold value to the country; such should not be lost sight of, but on the contrary should be encouraged to keep up a quasi official connection with the service, which connection should be made desirable by privilege and possible emolument.

The necessity for such a reserve is recognized in all armies except our own, and with them there is never any dearth of trained medical officers, except in the British army, since all there must learn the soldier's art. In

Great Britain, whose army ours most closely resembles, there is a reserve made up of retired officers of the permanent establishment together with surgeon of the auxiliary forces regarding which some of our friends might enlighten us.

We too certainly need a reserve medical corps. No thinking man can believe otherwise, neither can he question that the members of such a corps should have special instruction in the work of the military medical officer. [Applause.]

The method by which such instruction can best be imparted is a question to be determined only by more careful consideration of the subject than has probably yet been given it. I know of no reason why we should not put into effect the same scheme that now exists in Great Britain, where in the various medical schools the students receive instruction as well in the duties of the medical officer. Upon graduation these gentlemen usually enter into civil practice, but they are available for duty as officers of the Medical Department when the army is extended in active service.

The subject of correspondence schools in this connection, advanced by Major Ames, is worthy of consideration. I have the honor to be for the moment a member of the Staff of the Infantry and Cavalry School, Fort Leavenworth, the function of which is to instruct the officers of those arms in the military art. My part of the work, as you doubtless infer, is the teaching of military hygiene. With the passage of what is known as the Dick bill the question of the instruction of officers of the state forces came up for consideration by the school staff. I took the matter up with General Bell (the Commandant) and suggested that inasmuch as it would be possible for only a small number of the militia officers to avail themselves of this instruction in person, that we might organize a correspondence school, of which officers of the line of the army, as well as those of the state forces could avail themselves in obtaining a knowledge of the military art.

After giving considerable thought to the suggestion General Bell concluded that it would be impracticable at this time to undertake a correspondence school in connection with the college because such a school would require a very large teaching staff, would involve a great deal of special work, and would demand a class of students who would obligate themselves to pursue the course faithfully, the latter of which it was believed could only be accomplished by the offer of some substantial reward. For these reasons General Bell concluded to postpone further consideration of the matter for the present.

This year the War Department has authorized an officer of the Massachusetts Militia to study the methods of the college with the object of obtaining sufficient knowledge of them to enable him to organize a correspondence Military school in Boston. It is possible Major Ames may know something of this.

Here is an experiment that Massachusetts, always in advance, proposes to make for herself, and it is possible excellent results will follow. If such

proves to be the case, then can other states take up this same work, and a department can be added for the instruction of medical officers as well. This suggestion which is but another phase of Major Ames' thought may be worthy of trial.

I think the foregoing crudely perhaps, but fairly represents the views held by the majority of officers of my corps, and they certainly indicate no desire to aggrandize ourselves at the expense of anybody. Indeed were we more aggressive I believe it would be better. It goes without saying that we who are specialists in medico-military work should, in active service be placed in administrative positions, if we have demonstrated our fitness for such work. But these positions are not necessarily confined to officers of the regular establishment alone, and never were. They have been equally open to officers of volunteers, when the latter have learned the lesson, and some of the finest medico-military specialists have come from that branch of our army.

I have but a word to add. Let us not lose sight of the fact that we of the Association of Military Surgeons have identical aspirations towards which we are lighted by the lamps of patriotism and altruism. We cannot hope for perfection but the nearer we approach to our ideals, the better will we fulfill the object of our existence: the prevention of disease and the succor of the sick and wounded soldiers. These are grand ideals and personalities should never be permitted to belittle them. [Applause.]

CAPTAIN JAMES P. WARBASE, N.G.N.Y.— I believe that the best interests of the medical profession and the medical military man would be served if it were possible for us to vie only with one another in striving for medical improvement and if it were possible to do without military rank. We are doctors first and essentially. Unfortunately the army is so constructed that a medical officer to carry out his work must have some authority. That being the case, the subject under discussion represents a question of much importance. This matter of the contract surgeon, which from the beginning has served to degrade the medical profession, continues to exist. Notwithstanding measures for the amelioration of his condition, we still have the contract surgeon, the man who does the medical work of the army in time of war, and whose treatment at the hands of his country should be a matter of shame to a civilized people. I believe the suggestion made by the reader of the paper contains the solution of the problem; and I think this association is to be congratulated upon having presented to it a practical solution of this matter of bringing to the service of the army medical men from civil life. In time of war the few medical men of the regular army are but a very small handful compared with the medical men who must be called from civil life to do the medical work.

We are all familiar with the intolerable conditions under which the acting assistant surgeons worked. Unfortunately these conditions pursue him after he has left the army. The man who occupies a military position and

who has held military rank, after his term of military service expires enters into civil life with some honor and credit. With the acting assistant surgeon it is different. I am in a position to illustrate the manner in which the laws governing the acting assistant surgeon follow him into civil life and discourage men from following that branch of the service. For example, I will cite a case that occurred in a metropolitan city, in which two physicians from the health department went into the army as acting assistant surgeons at the risk of losing their municipal positions. When they returned they were reinstated because public sentiment would not have them dismissed. Later the state in which the city was located passed a law granting authority to reimburse city employees who had been in the service during the Spanish war. These men were declined reimbursement because it was ruled by the comptroller of the city that they were not soldiers. The fact that these two were refused recognition cast a suspicion over their alleged military service. The War Department of the United States was communicated with and it denied that these two medical men were either officers or soldiers. As far as any recognition was concerned, to have enjoyed a summer's holiday at a New York fort, as assistant surgeon would have availed them more than to have served on the field in Cuba in the capacity of acting assistant surgeon. Their neighbors and friends had supposed that they were at the front in the War, but when it was found that they were not eligible to the bounty granted to soldiers and officers, it is wondered where they were. This is but a single one of the examples which might be cited to illustrate how the contumely which is his in the service follows the contract surgeon into civil life. It bears testimony to the patriotism of medical men that so large a number can be found to serve under these conditions. I think it is high time and necessary that this association should take a hand in an effort to correct these conditions with which we are all familiar. The admirable paper by the member from Massachusetts offers a solution to the problem, and I endorse it heartily. [Applause.]

MAJOR JEFFERSON R. KEAN, U.S.A.—It had not been my intention to make a speech and the five minutes allowed me will be ample for what I have to say. In reply to Major Ames I simply wish to assure the members of this Association that my chief, the Surgeon General, has no deep-laid plots against the Constitution of the United States or the rights and liberties of any one, and no one would be more amazed I think, than he, to see what a formidable superstructure the gentleman's imagination has reared upon so slim a foundation of suspicion and misinterpretation.

The abstract of Major Ames' paper published in our program contains no whisper or suggestion of the vials of wrath which have just been out-poured, and which seem to be a late and unfortunate addition prompted by the contents of a recent personal letter written by a medical officer in no way connected with the office of the Surgeon General, who by the way, has been absent in Europe since six weeks before that letter was written.

The specifications to the charge seem to be two, first that the number of reserve medical officers provided by the bill is not limited, and second that no provision is made for their instruction by the Army Medical School. Of course it is a great pity that the Surgeon General could not follow implicitly and in all its details the scheme submitted by the gentleman from Massachusetts, but he felt that there were others who were at least as representative of the medical profession, as for example the President of the American Medical Association, who thought that if the examinations for these commissions were free to all and independent of political influence they might have a valuable effect in aiding to establish a much-to-be-desired standard of medical education in this country.

The absurdity of the pretense that the Surgeon General desires to build up a great body of dependents throughout the country not under the control of Congress is evident when it is pointed out that these men will have no official connection with his office until they are called into active service, and will in fact simply constitute an eligible list. When called into active service they have to be paid. Now this pay has to be provided for 50 or 100 or whatever may be the number allowed in the annual appropriation bill. So the control of the number in service by Congress is perfect and continuous and is exercised in the same way that our Government and that of England have always controlled the Army establishment—namely, by the power of the purse. I am scarcely sanguine enough to hope that the number with an unlimited list will ever equal the 4,000 which Dr. Ames generously offers to allow us.

The proposition to inject politics into the appointment of these men instead of having it depend solely on their own merits seems to me utterly undesirable and vicious. The proposal to mix up the National Guard medical officers in it shows that the purpose of this reserve has not been clearly understood. The Reserve Medical Corps has no connection whatever with the State troops, but is a part of the Regular establishment and intended to supplement the numerical deficiencies of the Regular Medical Corps. This is clearly stated in the bill and the Reserve Corps is not intended to conflict with or trespass upon the medical organization of the Organized Militia. It being a part of the Regular Department it is hard to see why the control of it by the head of that Department should be so much resented.

As regards the instruction of the Reserve Corps at the Army Medical School either personally or by correspondence, that is a bridge which the Surgeon General probably does not wish to cross until he comes to it. At present the benefits of the School have by the Dick Bill been extended to the great body of Medical Officers of the Organized Militia and the problem before the Department is how, with the small accommodations of the School, to meet this large and important responsibility, which I think you will all admit takes precedence of the question of educating a Corps which has as yet no existence.

The promptness with which National Guard officers have taken advantage of this right is very gratifying. This year they compose nearly half the School and next year the prospects are that the War Department will be overwhelmed with applications.

The applicability of the correspondence method to this School is a debatable question which certainly requires careful investigation and perhaps trial before Congress is asked to saddle it upon us by legislation.

In conclusion I desire to say that the Surgeon General is always open to suggestions and new ideas, and that he earnestly desires the support of the Medical Profession and of this Association. But it seems somewhat unreasonable that any one individual should shoulder aside all other advisers and demand in the name of the medical profession that his own ideas have precedence of all others and that they be with all their crudities and complexities forced upon the Medical Department, without change or modification. [Applause].

MAJOR AZEL AMES, U.S.V.—I simply wish to say, asking pardon for taking any more time, because you have other matters to claim your attention, that I want to emphasize this fact, that while there is no fear that the Surgeon General will designedly transgress the Constitution, a law as loose and as contrary to public policy as is proposed by him, would make it possible in the hands of a bad man to do that which I have outlined. Not only that, it is just and right, or it is not, that the men who serve their country from the great medical profession in civil life should have equal opportunity with other men, their professional brothers, serving the country, and that these men from civil life should have every opportunity to become and do their best and not be relegated to the rear as subordinates and inferiors purposely kept so. I deplore as much as anybody the fact that there is being so much consideration necessarily given to medical military rank, but there will never come a time when conditions that are quite possible to great standing armies of European monarchies will obtain, or be tolerable, in the armies that are the National Guard of the United States. It is proposed to deprive these men of the knowledge that the United States is willing to pay for and to keep them ignorant that they may be made and kept subordinates. To bring about results that are enduring and righteous we must bring about some such amelioration of present conditions as I have suggested. And this will be done if, and as soon as, the great medical profession of the country unites in demanding it. [Applause.]

THE ROLL OF HONOR FOR 1903-1904.

BY CAPTAIN SAMUEL CECIL STANTON,
ASSISTANT SURGEON IN THE ILLINOIS NATIONAL GUARD;
CHAIRMAN OF THE NECROLOGY COMMITTEE.

THE Necrology Committee has the honor to report that since the meeting of the Association in 1903 the following nine members have died.

Lieutenant Colonel Isaac Newton Love, Medical Director, N.G.Mo., was born in Barry, Ill., September 13, 1848. At the age of thirteen he went to St. Louis, to live in the family of his uncle Dr. J. P. Hodgen, the famous surgeon. After a high-school course he entered the St. Louis Medical College and was graduated in 1872. He served as an interne in the St. Louis City Hospital for two years and then became assistant to Dr. Hodgen. He devoted his attention chiefly to diseases of children and rapidly built up a large and lucrative practice.

For a time he was city physician of St. Louis and also instructor in physiology in the St. Louis Medical College. In 1889 he was appointed Professor of pediatrics in the St. Louis College of Physicians and Surgeons and later became Professor of Diseases of Children in the Marion Sims College of Medicine of St. Louis. He was a frequent contributor to medical literature, and in 1890 founded the *Medical*



Lieut. Col. I. N. Love.

Mirror which he conducted up to the time of his death. In 1901 he left St. Louis and located in New York City where he was prepared, as he said, to do the best work of his life.

In 1889 Dr. Love was Medical Director in the National Guard of Missouri and in view of his interest in the first St. Louis meeting of the Association, was elected an honorary member.

He was a member of the American Medical Association, and a trustee of that Association continuously from 1889 to 1901, vice-president in 1893, and chairman of the section of diseases of children in 1899. In 1887 he was elected president of the Mississippi Valley Medical Association and in the same year was made secretary of the pediatric section of the International Medical Congress.

On May 29, 1903, he went abroad with a patient and after seeing her comfortably located in Paris, he returned, sailing on the *Aurania*. He appeared remarkably well and happy and was exceedingly popular on ship board. He frequently expressed himself as feeling ten years younger and manifested his good feeling and high spirits in his customary exuberant way. He was chosen by the passengers to present to the captain and officers of the steamer resolutions of commendation and thanks, and on June 18, while the steamer was in New York Harbor and nearing her pier he had risen to perform this pleasant task, had read the resolutions, and was delivering the presentation speech in his usual happy and felicitous manner, when he suddenly clapped his hand to his head, fell to the deck and died in his cabin from apoplexy a few minutes later.

Dr. Love probably had as large a personal acquaintance among the members of the medical profession in America as any one physician. He was a man of remarkable social qualities and personal attractiveness and was a most agreeable and congenial companion. He was fond of his friends, faithful to them, and was remarkably free from all petty personal or professional jealousies. He was optimistic in his nature and generally saw the silver lining of passing clouds.

Lieutenant Colonel Charles Frederick William Myers, N.G.N.J., was born in Buffalo, N. Y., September 16, 1849, the son of Arnold W. and Mary Myers. He received his early education in the common and high schools of Columbus, Ohio, and then taught school in Warren, Ind., and Delaware, Ohio. In 1868 he settled in New York and was instructor in a business college there for two years. In 1870 he moved to Paterson, N. J., and established a business college which he conducted for three years. During this time he commenced the study of medicine under the late Dr. Orson Barnes, entered Long Island College Hospital and pursued his studies there and at the College of Physicians and Surgeons in the City of New York, graduating from the latter institution in 1874. He then entered upon his professional career in Paterson.



Lieut. Col. Charles F. W. Myers.

He served as coroner of Passaic County for three years and in 1878 was elected city physician of Paterson and served the city with the ability in that capacity until 1890,—a period of twelve years.

He was a member of the American Medical Association, the Medical Society of the State of New Jersey, the Passaic County Medical Society, Jersey City Academy of Medicine, New Jersey Order of Military Surgeons, of which he was at one time president, and the Association of Military Surgeons of the United States of which he became a member in 1891.

He entered the military service of the State in 1881, when the old Light Guard was organized and later became Major and Surgeon of the First Battalion. When the Light Guard was mustered into the state service he continued in it, was made

Lieutenant Colonel and Medical Director of the First Brigade in 1893, and remained in the service up to the time of his death.

He died at his home in Paterson August 31, 1903, from the effects of an apoplectic seizure after an illness of only an hour and a half. He had been an invalid for several years and had traveled extensively in the hope that rest and change from the routine work of a large practice would prove beneficial.

He was married in 1874 to Miss Catharine Marshall, who died about five years ago.

Lieutenant Earl Hamilton Fish, N.G.Colo., was born in Providence, R. I., February 21, 1873, the son of James Coby Fish and Jennie Nevins. He received his early education in the grammar schools of Providence and took his high-school course in Massachusetts. He came to Denver and there took up his



Lieutenant Earl Hamilton Fish.

medical studies at the Denver College of Medicine from which he was graduated in 1893, with the highest honors. He served as interne in St. Luke's Hospital, Denver, for a year, and then took a post graduate course at Johns Hopkins University, Baltimore, paying especial attention to surgery. On his return to Denver he became associated with the late Dr. Clayton Parkhill and acted as his as-

sistant for several years. In 1897 he moved to Ouray where he gave special attention to mining surgery. His reputation in that direction became quickly known and during his life in the mining region he invented a number of life-saving devices for quickly bringing injured miners from the shaft to the surface. In the early part of 1894 wearied of the limited field of rural practice Dr. Fish returned to Denver and resumed practice.

In 1895 and 1896 he held the position of lecturer on minor surgery and bandaging in the University of Colorado and later

on was assistant to the chair of surgery in the same institution.

The name of Dr. Fish will be preserved in the books which he wrote and the numerous contributions which he made to the medical literature. Chief among these were "Surgical Technique," Colorado Medical Journal, 1895; "First Aid to Injured Miners," which appeared in the same journal in July, 1898, and has been widely quoted and translated into several languages; "Asepsis in Country and Private Practice—a new Sterilizer," the same journal, 1899; Blood Examination in the Diagnosis, Prognosis and Treatment of Pneumonia," Medicine, 1899; "The Importance of Blood Examination in Reference to General Anesthetization and Operative Procedures," Annals of Surgery, July, 1898, "Surgery, its Principles and Application," read before the American Medical Association, and "Text-book on Surgery for the Country Practitioner," which was in press at the time of his death.

In addition to the appliances already mentioned Dr. Fish invented a special sterilizer in compact form useful to the country practitioner and a folding irrigator constructed on the principle of the tourist folding drinking cup.

Dr. Fish was a member of the Denver and Denver County Medical Society, the Ouray County Medical Society, Colorado State Medical Society, the American Medical Association, and the Denver Clinical and Pathological Society.

He was commissioned First Lieutenant and Assistant Surgeon and assigned to duty with the First Infantry, N.G.Colo., July 24, 1896, and saw active service during the labor troubles in Leadville and Telluride and was retired in 1897.

He was found dead in bed on the night of July 15th, the cause of death being an acute attack of gastroenteritis which did not even confine him to bed, but which evidently overtaxed a rather weak heart.

Dr. Fish was greatly beloved by his friends and colleagues for his unselfish and generous disposition. In his professional and personal relations he was always a true and polished gentleman and his death in the prime of life is a distinct loss to the medical profession of Colorado and the West.

Major Charles Andrew Dunham, F.S.T., was born in Hallowell, Maine, May 25, 1855, the son of Andrew Elliott Dunham and Amanda M. Harver. He received his early education in the public schools, high-school and classical school in Hallowell and Freeport, Maine, and then took a course in the business college at Augusta. He began his medical studies in the Medical School of Maine at Bowdoin College, Brunswick, from which he was graduated June 7, 1880. He was assistant demonstrator of anatomy for three years and for two years (1879-1880) was prosector for clinical study under Professor Weeks.

He practiced for two years after his graduation at Topsham, Maine, and was then for four years assistant resident physician



Major Charles A. Dunham.

at the Boston Public Institutions on Deer Isle, Boston Harbor. From 1885 to 1887 he practiced in St. Augustine, Florida, and went from there to Los Angeles, Cal., where he remained for two years, returning to St. Augustine where he practiced until his removal to Jacksonville. He was a member of the attending staff of Alicia Hospital, St. Augustine, for seven years.

He entered the military service of the State in 1895 and was first a member and then first lieutenant in the Florida State Troops, and in 1895 was appointed first lieutenant and assistant surgeon and assigned to the first battalion, F.S.T. He served in this capacity until the outbreak of the Spanish-American War, when, on the formation of the 1st Florida Volunteer Infantry, he was commissioned first lieutenant and assistant surgeon, U.S.V., and on October 10, 1898, was promoted to captain, and served in this capacity until the regiment was mustered out of the United States service, in February, 1899. On the re-organization of the Florida State Troops by regiments under the Act of 1899, Captain Dunham received his majority, being commissioned June 30, 1900, and was assigned to the First Infantry as surgeon, and served in this capacity until his death.

He was Secretary of the St. John County Medical Association for ten years and was for a long time county physician, agent of the State Board of Health and quarantine physician. He moved to Jacksonville the day before the great fire of May 3, 1901, and was at once placed in charge of the Relief and Emergency Hospital and performed notable service until the hospital was closed two months later. During this time he had charge of 2,500 patients suffering from all kinds of illness and injury.

He became a member of this Association, March 15, 1903.

He died suddenly of heart disease at his residence in Jacksonville, November 18, 1903. His wife survives him.

From the general orders regarding his death the following excerpt is taken: "Dr Dunham was loved by all who knew him, was a good man and very capable as a physician and surgeon. As a medical officer he rendered most efficient service. In civil life he was companionable and kind, possessing the esteem and regard of all who knew him."

In tribute to Major Dunham's memory the flag was ordered placed at half-staff on all armories on the day of his funeral, and the prescribed badge of mourning was worn by all officers of his regiment for thirty days. At his funeral, the non-commissioned officers formed the funeral escort. The procession was headed by the First Regiment Band followed by the First Infantry, the Rifles, and the Artillerymen.

Major David Lynch Wallace N.G.N.J., was born in Newark, N. J., January 14, 1855, the son of Daniel Wallace and Deborah Lynch. He received his early education in the schools of Newark and then entered Bellevue Hospital Medical College, New York City, from which he was graduated in 1875. After eighteen months post-graduate work, during part of which time he was house-surgeon at Bellevue Hospital, he began practice in Newark.

He attained great success in this field and in hospital work. He early took a deep interest in the Newark City Hospital and was insistent in urging the erection of the present structure. In 1884 he was appointed health officer of Newark and held this

appointment for six years. In 1891, when the Board of Health was organized, he was named as a member of it and served as its secretary until his last illness.



Major David L. Wallace.

He was also a member of the State Sewerage Commission and took a deep interest in the question of the pollution of the Passaic River in its bearing on the health of Newark.

He was commissioned Major and Surgeon of the First Regiment, N. G. N. J., August 23, 1886; was transferred to the Medical Department by the act of March 23, 1892; was commissioned Major and Surgeon, First Regiment, March 30, 1903, to date August 23, 1886; and was retired by special orders No. 20, A. G. O., April 13, 1898.

While in discharge of his professional duties he contracted pneumonia and died on March 2, 1904, after an illness of only six days.

Lieutenant Colonel Henry McIntire Worthington Moore, O.N.G., was born in Westchester, Pa., May 30, 1862, the son of Rev. William Eves Moore, D.D., LL.D., and Harriet Francina Foot. He received his general education in the common schools of Westchester, Pa., and Columbus, Ohio, was fitted privately for College by his father and brother, entered Marietta College, Ohio, in September, 1879, and was graduated with the degree of A.B., in 1882. In the same year he entered Columbus Medical College and was graduated in 1885, with the degree of M.D.; and the same year received his degree of A.M. from Marietta College.

Immediately upon his graduation in medicine he began his

work as teacher and served as assistant to the chair of obstetrics and as lecturer on hygiene in Columbus Medical College until 1889, and as lecturer on bacteriology in Starling Medical College, Columbus, from 1895 to 1899.

He became a member of the Association in 1895, served as Chairman of the Committee of Arrangements, in 1897, and as a member of the Executive Committee from 1897 to 1899, and from 1901 to 1903. His other society affiliations included the American Medical Association, Ohio State Medical Society, Columbus Academy of Medicine, the Ohio Society of the Sons of the American Revolution of which he was secretary and treasurer, and the Naval and Military Order of the Spanish-American War.

His military experience began with his enlistment as a private in Company A., Fourteenth Infantry, O.N.G., on July 10, 1880. He was discharged on account of expiration of term of service on July 31, 1889. On March 11, 1892, he was commissioned Captain and Assistant Surgeon and assigned to the First Light Artillery; was made Major and Surgeon of the same command June 30, 1896, and served until December 31, 1899. He



Lieut. Col. Henry M. W. Moore.

was made Lieutenant Colonel and Chief Surgeon of Division, July 17, 1900, and resigned November 23, 1901.

His active service began with his commission as Major and Surgeon of the 1st Ohio Volunteer Light Artillery, May 11, 1898; he was made acting Brigade Surgeon of the Light Artillery Brigade at Camp George H. Thomas, Chickamauga, Georgia, and served in that capacity from May 18 to September 5, and was in command of a provisional hospital for volunteers at Columbus, from October 18, 1898 to March 10, 1899. He was mustered out of the U. S. service May 10, 1899. He was examiner of recruits

for the army in Columbus from March 11, 1899 to December 31, 1899 and from September 14, 1900, until his death. During the muster-in period at the outbreak of the Spanish-American War, Col. Moore served as Acting Assistant Surgeon General of the State, and medical purveyor.

He was ill only a few days, and died August 6 from the effects of an over-dose of chloral, taken to relieve severe pains in the head. He was unmarried and made his home with his mother in Columbus. Col. Moore was one of the most prominent physicians of his home city and leaves a host of friends to mourn his untimely death.



Sir W. Mitchell Banks.

of the Royal College of Surgeons of England, in 1869; honorary Doctor of Laws, in Edinburgh in 1899, and in the same year on the occasion of the eightieth birthday of Queen Victoria, received the honor of knighthood. He was demonstrator of anatomy in the University of Glasgow under Allen Thomson, then spent some time as surgeon to the government of Paraguay,

Sir William Mitchell Banks, M. D., LL.D., F.R.C.S. Eng., J.P., was born in Edinburgh, Scotland, November 1, 1842, the son of Peter Spalding Banks, Writer to the Signet, and Anne Banks. He received his early education in the Edinburgh Academy and then passed to the University which he entered in 1859 as a medical student, graduating with the degree of M.D., with honors, in 1864. His thesis on "The Wolffian Bodies," which remained for many years the accepted authority on the subject, was awarded a gold medal. He was made a licentiate of the Royal College of Surgeons, Edinburgh, in 1863; Fellow

South America, and finally went to Liverpool, in 1869, as assistant to the eminent surgeon, Mr. E. R. Bickersteth. He soon joined the staff of the Infirmary School of Medicine which was then almost moribund, and was one of those who labored hard and successfully to place the school on an equal footing with other institutions of the country. His special department of the school was anatomy of which he was successively demonstrator, lecturer, professor and finally emeritus professor. He also took a leading part in the movement in favor of higher education in Liverpool which led to the formation of University College in 1882 and culminated in the establishment of the University of Liverpool in 1903. For several years he represented Victoria University on the General Medical Council, and was also at one time a member of the Council of the Royal College of Surgeons of England. In 1875 he succeeded Mr. Reginald Harrison as assistant surgeon to the Royal Infirmary and two years later he was appointed full surgeon, and served in this capacity for a quarter of a century, when he retired and was appointed consulting surgeon. He was also honorary consulting surgeon to the Bootle Borough Hospital and to the Alexandra Hospital, North Wales.

His contributions to medical literature were numerous, the most important of which related to cancer of the breast and to the radical cure of hernia. In 1897 his address at the Montreal meeting of the British Medical Association on "The Surgeon in Time of War," was a classic, widely-published which added much to the credit of the military surgeon, and on account of which he was in 1899 elected a corresponding member of this Association. He was a member of the British Medical Association and President of the Surgical Section in 1897, an honorary or corresponding member of the Royal Medical Society of Edinburgh, and of the Medical and Harveian societies of London. He was president of the Liverpool Biological Society and of the Liverpool Medical Institution. In 1900 he delivered the Lettsomian Lectures on cancer of the breast.

He died suddenly in Aix-la-Chapelle August 9, from angina pectoris while on his way to Homburg where he had been recommended to go for treatment by Sir Dyce Duckworth.

The Rev. Dr. Watson (Ian Maclaren) in his memorial address said, "Mitchell Banks, as we love to call him, had those fine qualities which he shared with the chiefs of his illustrious profession. He had sound judgment, was open to light from every quarter, but was dazzled by no speculations and tried no wild experiments with the living. Dealing with the issues often of life and death as he did, he depended on knowledge as his best ally. He was a safe and sound man who created and who merited confidence. Above all, there dwelt in him that soul of kindness without which no man can reach the height of his calling in medicine or any other profession. His was a shrewd insight and a clever hand, but his was also a big heart. Because he was so brotherly to every fellow creature and so true to his friends, we loved him living, and now when he is gone we shall keep his memory green."

Captain Ralph Chandler, W.N.G., the first corresponding secretary of the Association, was born in Milwaukee, July 18, 1861, the son of Walter Seymour Chandler and Sarah Olivia Kneeland. His early education was received in the Milwaukee public school, a private academy, the Milwaukee High School and Carroll College, Waukesha. After his graduation from college he began the study of medicine with Dr. Solon Marks and after careful preparatory study, entered Rush Medical College, Chicago, in September 1883, and was graduated from that institution in February, 1886. As a result of competitive examination he obtained an internship in the Cook County Hospital and after six months of post-graduate study in Vienna, entered upon his duties in Cook County Hospital, and there served acceptably until April, 1888, when he returned to Milwaukee and began practice.

He held positions as lecturer on surgery and diseases of children to the Wisconsin Training School for Nurses, and lecturer on first aid at St. John's Military Academy, Delafield, Wis. His chief contribution to surgical literature was his paper on the use of wire gauze in fractures which he recommended in 1890. This valuable device was afterward recommended by Dr. Senn to be placed in the surgical chest and in the orderly pouches of the Army.

He took a great interest in the Children's Free Hospital of Milwaukee, of which he was attending surgeon, secretary and later, president of the staff. He was also attending surgeon to the Johnston Emergency Hospital, Milwaukee.

His society membership included the American Medical Association; the Association of Military Surgeons of the United States, of which he was corresponding secretary from 1891 to 1893; Wisconsin State Medical Society; Wisconsin National Guard Association of which he was at one time secretary; Milwaukee Medical Society of which he was curator and vice-president; Chicago Pathological Society, and the alumni associations of Cook County Hospital and of Rush Medical College. He was also a member of the Sons of the Revolution and of the Loyal Legion.

His military service began with his enlistment in the First Light Battery, W.N.G., May 11, 1885. He was commissioned Assistant Surgeon with rank of First Lieutenant, on June 24, 1899, and was commissioned Surgeon with the rank of Captain, June 29, 1893. He was mustered out of the service July 11, 1898, and was recommissioned surgeon, with rank of Captain, November 25, 1898. His active service included tours of duty at eleven annual camps and riot duty for seven days at Oshkosh, Wis., in May, 1898.

His last illness began about August 5, and on August 10, he was operated on at the Knowlton Hospital for intestinal obstruction, but sank rapidly after the operation and died, August 12, about 4 p. m.

He was married in 1894 to Miss Louise Eldred who survives him.



Captain Ralph Chandler.

The funeral services were held from his residence August 14. The active pallbearers were non-commissioned officers detailed from the First Light Battery, W.N.G., of which he had been surgeon for many years and the honorary pallbearers were Drs: Solon Marks, E. Copeland, F. E. Wallbridge, William Mackie Thomas E. Hay, C. H. Stoddard, William Thorndike, Gilbert E. Seaman, H. E. Holbrook, Major Howard Green, Major B. H. Dally and Capt. C. F. Ludington.

In the death of Captain Chandler, the medical profession lost one of its best known and most progressive surgeons, who possessed the confidence of his fellow surgeons and practitioners alike, and who promised to make for himself a still greater name. He was reckoned as an especial authority on fractures and was ever ready to devote his skill and experience to the suffering irrespective of their position in life or condition.

Dr. Henry Tuck, formerly Acting Assistant Surgeon, U.S.A., was born in Barnstable, Mass., May 9, 1842, the son of Dr. Henry Tuck and Caroline Cricken. His early education



Dr. Henry Tuck, U.S.A.

was received in the public schools of Boston; he received his degree of A.B. from Harvard University in 1863, and was graduated in medicine from Harvard University Medical School in 1867. He then went abroad, spending a year or more in the study of his profession, chiefly in Vienna, and returning home, began the practice of his profession in Boston in September 1868. His industry and professional skill were soon recognized, and he received several important professional appointments in-

cluding that of visiting physician to the Boston Lying-in Hospital, physician to the out-patient department of the Massachusetts Gen-

eral Hospital and manager of several leading charitable societies.

He was a member of the New York County Medical Society; New York County Medical Association; New York Academy of Medicine, and the Harvard Medical Club, and became a member of this Association in 1901.

During March and April, 1865, he served as acting assistant surgeon in the United States Army, in the Army of the James, taking part in the last campaign of that Army and being present at the surrender of General Lee's Army at Appomattox. Serious illness then compelled his retirement from the Army.

Dr. Tuck early became interested in life insurance, made its study his life work, and achieved great prominence in this direction. In 1877 he was made medical referee and examiner for the Mutual Life Insurance Company of New York and later served in a similar capacity with the United States Life Insurance Company. In 1877 he became one of the medical directors of the New York Life Insurance Company and displayed such knowledge, industry, energy and administrative ability that he was rapidly promoted and pushed forward in the administration of the affairs of that corporation, becoming successively trustee in 1878, second vice-president in 1883, and vice-president in 1885.

He died, after a long illness, at his summer home in Seabright, N. J., September 2, 1904, aged 62.

PENETRATING WOUNDS OF THE LUNG.

IN a case of stab wound of the lung (*Archives de Médecine et de Pharmacie Militaires*), with great hemorrhage and severe dyspnoea, Grunert enlarged the wound by resecting a rib, exposed a wound 3 cm. by 2 cm. deep, pulled the lung partly out of the thorax, and sutured the wound with catgut. A rapid cure followed. Grunert advises frequent interference in stab wounds of the lung with severe symptoms. He declares that surgeons interfere habitually too late. Much time is saved the patient, and the exudate is removed, thus preventing danger of infection.—S. M. DELOFFRE.

ALTITUDE AND EXPANSION.

By PAUL M. CARRINGTON, M.D.

FORT STANTON, NEW MEXICO.

SURGEON IN THE UNITED STATES PUBLIC HEALTH AND MARINE
HOSPITAL SERVICE.

I AM aware that my title is a little high sounding and comprehensive for what is intended to be a very brief note on the subject covered thereby. It is sometimes true, however, that an apt or taking title will attract attention to an article, which might otherwise pass unnoticed, and I believe that I shall be able to present a grain of truth of considerable practical value in these brief notes.

I am satisfied that sending consumptives to high altitudes indiscriminately and without carefully considering the eligibility of each individual for such treatment has shortened the lives of many, and doubtless caused the early death of some, whose cases under more judicious management, might have become arrested or cured.

In looking over the history charts of the Fort Stanton Sanatorium, of which I have had command for nearly four years past, I have been struck by the correspondence of a good expansion on arrival with resulting improvement or cure; and on the other hand with the frequency with which cases in which a very limited expansion was recorded terminated in death. The importance of expansion (as indicating the vital capacity of a patient) as a factor to be considered in determining whether or not a patient should be advised to seek treatment in a high altitude is one of the good points brought out in "High Altitudes for the Consumptive" by A. Edgar Tussey, M.D., of Philadelphia. This little monograph contains much excellent matter, which might be read with profit by Eastern physicians, upon whose advice consumptives resort to the arid south-west, a region which offers any desired altitude, in addition to other desirable climatic conditions, such as dryness, and a very large percentage of sunny days.

ALTITUDE.

Altitude is defined by Webster as "space extended upwards," and as used here, of course, refers to elevation as compared with sea-level. The altitude to which these observations particularly refer is that of Fort Stanton, New Mexico, which is 6150 feet, and may be classed as a moderately high altitude. According to the tables of Prof. Dewar, as supplied me in letters from Prof. Moore, Chief of the Weather Bureau, and Section Director Linney at Santa Fe, New Mexico, there is at the altitude of Fort Stanton no perceptible difference in the relative amount of oxygen and nitrogen contained in the atmosphere by volume, but there is a very decided decrease in the actual amount of oxygen *by weight* in a given volume, as well as in humidity, and the barometric pressure is but four-fifth of the pressure at sea-level. In other words a column of atmosphere at the elevation of Fort Stanton weighs 12 pounds to the square inch instead of 15 pounds as at sea-level; and while at each inspiration individuals of the same vital capacity will inspire the same volume of oxygen at the altitude of 6150 feet as at sea-level, the actual amount of oxygen inspired by weight is materially less, and owing to the decrease in pressure there is less oxygen combining with the haemoglobin of the blood. It is a clinical observation, with only one exception in our experience, that there is an immediate and rapid increase in the haemoglobin of patients admitted to the Fort Stanton Sanatorium. This is recognized as an effort of nature to readjust the individual to his new environment and provide for a greater assimilation of oxygen, and also the strongest proof of the truth of the foregoing statement. The single exception referred to was a case, which on arrival showed 35% of haemoglobin, which we were never able to increase beyond 45 or 50 per cent. We at first suspected pernicious aenemia in this case, but subsequent examination of the feces revealed the presence of the *Anchylostoma Duodenale* (Old World Hook-worm), and appropriate treatment resulted in the expulsion of the parasites with an immediate increase in haemoglobin within a few weeks from 35 to 95 per cent. This man's complexion, formerly sallow and earthy, is now ruddy and he is making a rapid recovery.

EXPANSION.

Expansion is a measurement of chest movement which takes place in inspiration embracing the movement between forcible expiration and forcible inspiration and is a valuable observation only as indicating the vital capacity, which is the term applied to the volume of air, which can be expelled from the chest after the deepest possible inspiration. The normal vital capacity of a man of average height, 5 feet 8 inches, is stated by Landois & Stirling to be 230 cubic inches, and the relation between expansion and vital capacity is stated by Tussey to be 1 to 60. In other words the expansion of the average man in health should be $3\frac{5}{8}$ inches, the measurement being taken around the chest at the nipple line.

Expansion and vital capacity are affected by the following circumstances:

1. *Height.* Every inch added to the height of a person between five and six feet gives an increase of 8 cubic inches to the vital capacity.

2. *Increase in body weight* of more than 7 pounds above the normal decreases the vital capacity by about $2\frac{1}{2}$ cubic inches for each two pounds of increase.

3. *Age.* The vital capacity is at the maximum at 35 years of age, and decreases upward to 65 and backward to 15 by a little more than 1 cubic inch for each year.

4. *Sex.* It is less for a women than for a man; the ratio being 7 to 10.

5. *Position.* More air is respired in an erect than in a recumbent position.

6. *Disease.* The vital capacity is decreased by abdominal and thoracic diseases.

Of course, the spirometer is the most accurate means of measuring the vital capacity, but for practical purposes expansion is a fairly reliable index of the vital capacity, although muscular contraction is recognized as a source of error.

REASONS WHY EXPANSION SHOULD GOVERN IN DETERMINING THE PROPER ALTITUDE FOR A CONSUMPTIVE PATIENT.

I wish to emphasize the fact that this article is in no sense a scientific treatise on the subject, but rather a practical observation based upon clinical experience.

It stands to reason that Case 1 with two inches of expansion representing one hundred twenty cubic inches of vital capacity, and barely able, at sea-level, to appropriate sufficient oxygen to maintain an ordinary metabolism should not do so well at an altitude of over six thousand feet as Case 2, with an expansion of four inches, representing a vital capacity of three hundred and forty cubic inches, and consequent appropriation of twice the volume of oxygen. The blood of Case 1 being insufficiently oxygenated fails to perform its functions completely and the patient suffers from dyspnoea and perhaps from cyanosis with increased cough and expectoration and extension of tuberculous areas, nature striving, without avail, to increase the haemoglobin with sufficient rapidity to supply the essential oxygen, and on the other hand, Case, with a moderate increase of haemoglobin is amply supplied with oxygen, all the symptoms abate and at the first examination, three months after admission, there is usually found a marked diminution of lung-tissue involved. In the two cases it is supposed that the percentage of lung-tissue compromised is the same. Of course the eligibility of patients for high-altitude treatment is modified by the extent of involvement and the stage of disease as well as by complicating diseases of various kinds.

STATISTICS.

Contrary to the usual object of statistics, these are intended to show the percentage of fatal cases, rather than the percentage of recoveries. The cases included in these statistics represent a number in which the treatment has terminated, and in a number of the cases some of the observations are blank. These are cases which occurred prior to the adoption of the present forms and before we had begun to make all the observations included in our present forms.

GLOSSARY.

D—Deck hand (or Death).

H—Common seaman, working in hold.

D of—Officer stationed on deck.

Eng—Engineer.

In "Summary of Rating" Column, "Deck" and "Hold" include officers and common seamen.

Off—Officers.

Dis—Disease.

Inj—Injury.

N. I.—Not improved.

A—Arrested (apparently cured).

C. S.—Common seaman.

Inf—Infection.

Exp—Exposure.

I—Improved.

TABLE 1

11 CASES HAVING MORE THAN 4 INCHES EXPANSION

Rating	Age	Family History	Pre disposing Cause	Loss of Weight	Respirations per minute	Pulse, per minute	Duration of Active Symptom (months)	Tubercle Bacille	Fever	Night sweats	Dyspnoea	Chest pains	Hemorrhages	Hemoglobin, per cent	Stage, on admission	Result	Stay at Sanatorium (months)	Lung un-consolidated (lobes)	Lung un-involved (lobes)
D 14	0	0	14	—	1	+	+	+	+	+	+	+	+	10	3	1	1	1	1
H 15	0	0	13	24	12	5	+	+	+	+	+	+	+	65	2	1	1	1	1
D of 31	8	0	—	14	72	33	+	+	+	+	+	+	+	80	1	1	1	1	1
D 22	+	Exp	13	14	14	2	—	+	+	+	+	+	+	80	—	2	1	1	1
D of 34	0	Exp	13	24	10	6	+	+	+	+	+	+	+	—	2	1	1	1	1
D 26	0	Exp	10	24	112	9	+	+	+	+	+	+	+	95	1	1	1	1	1
H 23	0	Exp	14	20	80	12	—	+	+	+	+	+	+	70	2	1	1	1	1
D 39	0	0	35	14	36	5	0	+	+	+	+	+	+	30	2	1	1	1	1
Exp 35	0	Exp	35	14	34	7	+	+	+	+	+	+	+	70	1	1	1	1	1
D of 30	0	Exp	12	24	30	2	—	+	+	+	+	+	+	70	2	1	1	1	1
— 26	0	Exp	2	—	2	+	+	+	+	+	+	+	+	30	1	1	1	1	1

Summary—Totals and Averages

Held 10-4-
 5 off 32 14 14 16 20 93 10
 6 C.S. 74 61 94 74 41 54 100 281 24
 4-5-2-4-5-6 15 16 25 1 6 28 26
 115 94 14

TABLE 2

11 CASES HAVING 4 INCHES EXPANSION.

Rating	Age	Family History	Pre disposing cause	Loss of Weight	Respirations per minute	Pulse, per minute	Duration of Active Symptom (months)	Tubercle Bacille	Fever	Night sweats	Dyspnoea	Chest pains	Hemorrhages	Hemoglobin, per cent	Stage on admission	Result	Stay at Sanatorium (months)	Lung un-consolidated (lobes)	Lung un-involved (lobes)
D of 22	0	0	—	22	80	6	—	+	+	+	+	+	+	—	2	1	1	1	1
D 22	0	0	—	15	72	7	—	+	+	+	+	+	+	—	70	1	1	1	1
D 28	0	Exp	5	—	74	29	0	0	0	+	+	+	+	—	1	1	1	1	1
— 22	0	0	35	13	3	+	+	+	+	+	+	+	+	—	2	1	1	1	1
D 31	0	Exp	12	—	5	+	+	+	+	+	+	+	+	—	9	1	1	1	1
D of 36	0	0	17	24	12	—	—	+	+	+	+	+	+	—	2	1	1	1	1
— 22	1	1	14	—	12	+	+	+	+	+	+	+	+	—	2	1	1	1	1
H 30	1	1	30	20	85	5	+	+	+	+	+	+	+	75	1	1	1	1	1
D of 40	0	Exp	14	14	34	0	+	+	+	+	+	+	+	85	2	1	1	1	1
D 41	0	Exp	—	28	88	7	+	+	+	+	+	+	+	—	2	1	1	1	1
D 29	0	Exp	13	24	34	4	+	+	+	+	+	+	+	0	20	2	1	1	1

Summary—Totals and Averages

Held 21 71
 3 of 34 9-4-18 21 22 5
 6 C.S. 61 54 54 71 11 54 11 12 17
 5-6-6-4-1-6 25 25 25 1 11 11
 85 114 20 14 14

TABLE NO. 1. Includes the record of 11 cases, having more than 4 inches of expansion. None of these cases terminated fatally. One of them was under treatment less than one month, and is one of the two cases discharged "not improved;" the other of these cases being under treatment only a trifle over one month.

TABLE 4
11 CASES HAVING 3 INCHES
EXPANSION

Rating	Age	Family History	Pre disposing cause	Loss of Weight	Respirations, per minute	Pulse, per minute	Duration of Active Symptoms (months)	Tubercle Bacille	Fever	Night sweats	Dyspnea	Chest pains	Hemorrhages	Hemoglobin, per cent	Stage on admission	Result	Stay at Sanatorium (months)	Lung un-consolidated (lb.)	Lung un-involved (lb.)
Df. 23	0	6	18	80	2	+	+	+	+	+	+	+	+	1	1	2	16	15	
Df. 37	0	2	20	27	+	+	+	+	+	+	+	+	+	3	1	7			
Df. 42	0	2	14	14	100	8	+	+	+	+	+	+	+	2	1	10	13	12	
H 27	0	0	2	20	80	+	+	+	+	+	+	+	+	30	2	11	2	14	12
D 27	0	2	7	22	72	2	+	+	+	+	+	+	+	2	1	16	15	6	
D 38	0	2	20	0	+	+	+	+	+	+	+	+	+	2	1	16	15	6	
D 44	0	2	20	12	45	12	+	+	+	+	+	+	+	3	1	6	14	10	
H 23	0	2	20	0	0	0	+	+	+	+	+	+	+	1	1	7	16	15	
D 49	0	2	11	18	70	12	+	+	+	+	+	+	+	2	1	14			
D 29	0	2	20	13	14	54	1	0	0	0	0	0	0	2	1	2	15	10	
H 37	1	+	18	80	+	+	+	+	+	+	+	+	+	80	2	1	6	1	5

Summary - Totals and Averages

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pansion; of these one died, 2 were discharged not improved, 6 improved, 1 was arrested or cured, and 1 under treatment less than 30 days.

TABLE NO. 5. Includes 81 cases having an expansion of between 2 and 3 inches; of these 20 died, 5 were discharged not improved, 42 improved, 10 were arrested or cured and 4 were under treatment less than 30 days and are eliminated.

TABLE NO. 6. Shows 32 cases having an expansion of two

TABLE 5.
81 CASES HAVING BETWEEN
2 AND 3 INCHES EXPANSION

Rating	Age	Family History	Predisposing Cause	Loss of Weight	Respirations per minute	Pulse, per minute	Duration of Active Symptoms (months)	Tubercle Bacille	Fever	Night sweats	Dyspnea	Chest pains	Hemorrhages	Hemoglobin per cent	Stage on admission	Result	Stay at Sanatorium (months)	Lung unconsolidated (lbs.)	Lung uninvolved (lbs.)		
D 34	0	0	26	+	+	+	+	+	+	+	+	+	+	0	65	3	1	9	5		
Df. 38	0	2	20	18	18	1	+	+	+	+	+	+	+	1	1	9					
H 36	0	2	14	14	12	+	+	+	+	+	+	+	+	2	1	12	15	12			
D 29	0	2	20	23	108	+	+	+	+	+	+	+	+	0	75	3	2	6	6		
H 38	0	2	20	24	74	0	+	+	+	+	+	+	+	70	2	1	11	9	7		
H 25	0	2	20	8	20	100	5	+	+	+	+	+	+	90	2	1	5	15	10		
D 39	0	2	23	+	+	+	+	+	+	+	+	+	+	3	1	22	13	12			
D 21	0	2	20	20	30	1	+	+	+	+	+	+	+	70	1	1	13	15	15		
Df. 34	0	2	20	24	104	4	+	+	+	+	+	+	+	2	1	14	13	8			
D 29	0	2	20	28	11	3	+	+	+	+	+	+	+	80	2	1	14	8			
— 27	0	2	24	22	12	2	+	+	+	+	+	+	+	3	1	13					
H 22	0	2	20	8	22	90	28	+	+	+	+	+	+	3	1	10	5				
D 26	0	2	20	30	108	12	+	+	+	+	+	+	+	30	3	2	1	8	2		
Df. 38	+	+	18	16	86	+	+	+	+	+	+	+	+	60	2	1	2	10	9		
D 43	0	2	20	32	16	88	2	+	+	+	+	+	+	80	2	2	15	14			
H 34	+	+	20	28	12	2	+	+	+	+	+	+	+	2	1	15	5				
Eng. 30	0	2	20	+	+	+	+	+	+	+	+	+	+	1	1	17	14	13			
D 24	0	2	20	22	100	15	+	+	+	+	+	+	+	3	1	5	9	8			
H 36	+	+	24	34	+	+	+	+	+	+	+	+	+	2	1	8	8				
D 40	0	2	20	12	21	17	9	+	+	+	+	+	+	3	1	5	11	4			
H 39	0	2	20	28	112	7	+	+	+	+	+	+	+	60	3	2	6	12	8		
— 30	0	2	20	33	14	86	120	+	+	+	+	+	+	9	1	8	10	7			
Df. 25	0	2	20	32	30	103	10	+	+	+	+	+	+	3	1	11	11	2			
D 36	0	2	20	12	12	12	+	+	+	+	+	+	+	2	1	9	12	10			
H 24	0	2	20	24	24	8	1	+	+	+	+	+	+	2	1	5	14	13			
H 35	0	2	20	4	20	74	6	+	+	+	+	+	+	2	1	3	15	10			
— 26	0	2	20	24	24	+	+	+	+	+	+	+	+	0	0	0	0	12	6		
Eng. 32	0	2	20	+	+	+	+	+	+	+	+	+	+	1	1	18	14	14			
D 42	0	2	20	13	28	116	7	+	+	+	+	+	+	0	73	3	2	14	9		
— 29	0	2	20	24	32	+	+	+	+	+	+	+	+	30	3	1	13	4			
H 24	0	2	20	14	4	0	0	0	0	0	0	0	0	70	2	1	3	9			
D 34	0	2	20	26	21	22	24	+	+	+	+	+	+	3	2	33	12	2			
H 30	0	2	20	44	21	112	14	+	+	+	+	+	+	15	3	7	3	10	3		
D 47	0	2	20	12	22	34	4	+	+	+	+	+	+	2	1	10	11	8			
D 47	0	2	20	21	20	36	36	+	+	+	+	+	+	2	1	2	9	13	10		
H 48	+	+	38	24	14	10	0	+	+	+	+	+	+	60	2	1	2	15	10		
D 16	0	2	20	44	24	116	10	+	+	+	+	+	+	3	2	0	4	1			
D 47	0	2	20	15	16	24	24	+	+	+	+	+	+	90	2	1	2	15	9		
D 44	0	2	20	51	24	116	5	+	+	+	+	+	+	35	3	2	1	10	3		
D 39	0	2	20	15	18	75	14	+	+	+	+	+	+	7	3	1	10	6	1		
Eng. 46	0	2	20	3	22	61	8	+	+	+	+	+	+	0	0	+	3	1	25	14	6
Df. 28	0	2	20	22	30	130	14	0	+	+	+	+	+	75	3	2	4	6	11		
D 37	0	2	20	32	100	15	0	+	+	+	+	+	+	2	1	2	23	14	2		
D 33	+	+	28	+	30	+	+	+	+	+	+	+	+	63	2	1	22	14	3		
D 21	0	2	20	20	46	3	+	+	+	+	+	+	+	2	2	6	15	3			

TABLE 9.
15 CASES HAVING LESS THAN 1 INCH
EXPANSION

Rating	Age	Family History	Pre-disposing cause	Loss of Weight	Respirations, per minute	Pulse, per minute	Duration of Active Symptoms (months)	Tubercle Bacilli	Fever	Night sweats	Dyspnoea	Chest pains	Hemorrhages	Hemoglobin-per cent	Stage on admission	Result	Stay at Starvation (months)	Lung un-consolidated (days)	Lung un-involved (days)	
H 41	-51	31	14	4	-	+	+	+	+	+	+	+	+	+	3	D	5	8	15	
H 22	-0	6	-	24	+	0	+	0	+	+	+	+	+	+	1	D	18	16	2	
-30	0	D	1	20	12	5	+	0	0	-	-	2	H	16	-	-	-	-	-	
D 24	-D	16	-	2	0	0	0	0	0	0	0	-	2	1	6	13	12	-	-	
D 26	0	2	11	-	3	+	+	+	0	+	+	-	1	1	17	10	2	-	-	
D 27	-D	34	-	3	+	+	+	+	+	+	+	+	3	1	12	7	-	-	-	
H 21	-	11	-	1	+	+	+	-	+	-	+	3	H	1	11	8	-	-	-	
Eng 28	-	5	30	16	6	+	0	+	+	+	+	+	3	D	5	7	-	-	-	
D 25	-	0	35	35	12	-	+	+	+	+	+	+	3	D	9	5	0	-	-	
D 24	-	14	-	-	-	+	+	-	-	-	-	-	3	D	5	3	8	-	-	
D 21	+	-	33	30	3	-	+	+	+	+	+	+	3	D	-	1	0	-	-	
-24	-D	0	16	24	-	+	0	0	0	0	+	15	1	1	2	16	10	-	-	
H 61	-	23	-	100	+	+	1	+	+	+	+	+	2	A	36	8	7	-	-	
D 41	+	-	15	29	124	12	-	-	-	-	-	-	3	-	-	5	0	-	-	
D 24	+	21	24	40	144	4	+	+	+	+	0	70	3	D	0	8	0	-	-	
Summary-Totals and Averages																				
1864																		72	6%	
5144	27	81					31	111	101	81	71	101	21	101	68					
20	24	12	-	24	29	120	H	6	-	4	-	7	-	5	-	5	17	91	33	14
1168																		1A	3%	

TABLE No. 9. Includes a record of 15 cases having an expansion of less than one inch; of these 7 died, 2 were discharged not improved, 4 were discharged improved, one was arrested or cured and one was under treatment less than 30 days.

A careful study of the tables will show in most instances of a fatal termination in cases arriving with good expansion that there was some other unfavorable condition, such as an excessive area of involve-

ment. While fortunately these statistics show numerous exceptions to the rule, they seem to me overwhelmingly in favor of the contention made, and I hope that some of you, at least, will when the tables are

published read them carefully, as it is manifestly an impossibility for me to read them in detail, even if I could hold the attention of an audience long enough to do so.

I hand you for inspection the charts of several cases, representing the extremes of expansion, with the corresponding results. Naturally I have selected typical cases as most fittingly representing the argument I am making.

CASE I.

Name, Engolf Gronning; rating, able seaman: nativity, Norway; age: 21, date of admission, Dec. 16th, 1902; stage, third: date of discharge, Sept. 18th: 1903; result, death. Personal history: disease favoring tuberculosis, heavy cold contracted in Alaska; autopsy, 9-18-03.

Symptoms before admission: Cough for about three months. Sputum,

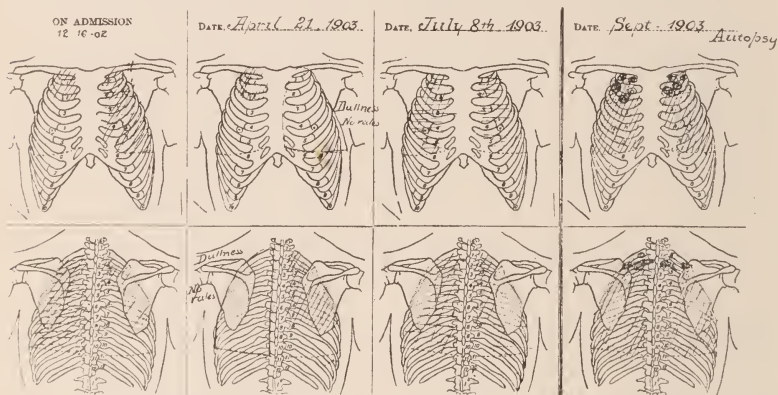
muco-puru. Tubercle bacilli, negative; Fever, Night sweats, Dyspnœa. Chest pains, (pleuritic), Nose and throat, chr. rhinitis.

Symptoms on admission, Dec. 16, 1902: Appetite, good. Sleep, good. Cough, slight. Sputum, slight m.p. Tubercle bacilli, numerous, apptly pure. Hemorrhages, blood-streaked sputum. Chest pains (pleuritic), yes, right side. Hæmoglobin, per cent, 70%-80%.

Symptoms on subsequent examinations, Feb. 19, 1903: Appetite, fair. Sleep, good. Cough, slight. Sputum, slight. Tubercle bacilli, few found. Heart, action rapid.

Symptoms on subsequent examinations, April 21, 1903: Appetite, fair. Sleep, good. Cough, slight. Sputum, slight m.p. Tubercle bacilli, few scattered. Heart, rapid.

Symptoms on subsequent examinations, July 8, 1903: Sputum, $\frac{2}{3}$ pint in 24 hours. Tubercle bacilli, few, long and slim.



On discharge Sept. 18, 1903. Had all symptoms of meningeal affection. Mental condition dull, almost comatose. Complains of constant pain in frontal region. Kernig's sign well marked. No tenderness over skull perceptible.

Physical examination: General condition on admission, Dec. 16, 1902: Nourishment, fairly good. Weight, 141. Chest—Inspection: Shape, both clavicles slightly prominent. Left side of chest retracted. Palpation: Mobility, expansion nearly all on right side. Mensuration: Both, exp. 35, insp. 36 $\frac{1}{2}$. Expansion, 1 $\frac{3}{4}$ ", almost entirely on right side. Percussion: Left chest dull from apex to base, front and back. Auscultation: Right, ant. medium sized moist rales in apex. Post. same in apex and interscapular space. Left, Retraction and dullness probably from thickened pleura. Breathing is very shallow.

General condition April 21, 1903: Nourishment, fair. Weight, 144. Mensuration: Left chest, left side lags. Percussion: Same as last exam. Auscultation: Right, shows active condition. Crackling rales heard to inf.

angle of scapula, posteriorly. Left, occasional rales. Tied down by thickened pleura.

General condition July 8, 1903: Nourishment, fair. Weight, 138. Auscultation: Same areas of involvement, but very few rales over either lung.

CASE II.

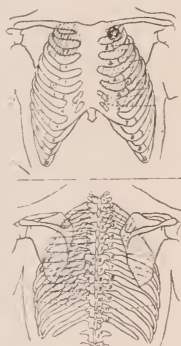
Name, S. Nilson: rating, able seaman; nativity, Sweden: age 33: date of admission, Feb. 21, 1903: stage third: date of discharge, March 3, 1903: result death. Personal history: disease favoring tuberculosis, contracted "cold" en route to Alaska.

Symptoms before admission: Night sweats. Chest pains, (pleuritic) 4 or 5 years ago.

Symptoms on admission, Feb. 23, 1903: Appetite, fair. Sleep, good. Cough, in evening. Sputum, muco-pur. Tubercle bacilli, present.

Physical examination: General condition on admission: Nourishment poor; Pulse, 124. Respiration, 24. Chest, poor. Inspection: Shape, left chest retracted below nipple. Left chest lags. Mobility, left scapula somewhat winged. Palpation: Mobility, a fremitus is felt over left chest on insp. and exp. Vocal fremitus, a bubbling râle fremitus felt on speaking over l. lung. Mensuration: Chest, exp. 89.5, insp. 93.5. Percussion: Left chest lags. Left lung comp. dull ant. from apex to 5th rib and post. from apex to inf. angle of scapula. Auscultation: Bronchical-breathing and a few clicks in right apex. Left lung bronch. breathing in apex to 3rd rib ant. and upper inter-scapular space post. Crackling râles and clicks in small numbers from apex to base, ant. and post.

ON ADMISSION



CASE III.

Name, John W. Spencer: rating, 2nd officer; nativity, Calif: age 29: date of admission, May 30, 1903: stage 2nd(?), family history, negative. Date of discharge, April 5, 1903: result, apparently cured. Personal history: habits, alcohol and tobacco.

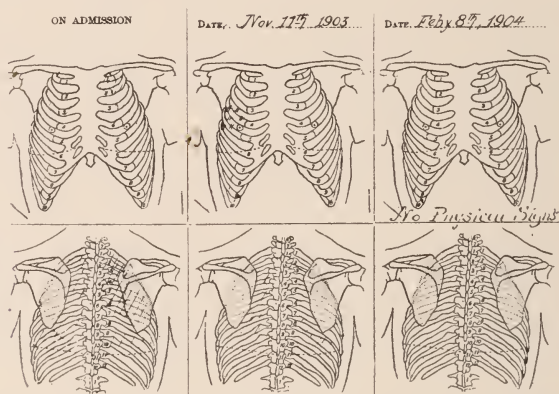
Symptoms, before admission: Appetite, good. Sleep, good. Cough 1½ years. Sputum, 1½ years. Tubercle bacilli, none found. Other organisms, many others found. Fever, daily evening rise for some time. Night sweats, severe 6 months ago. Hemorrhages, streaked sputum 1 mo. ago. Chest pain, none; Hæmoglobin, per cent, eighty. Complications and tuberculosis of other organs: Genito-urinary, gonorrhea 2 years ago. Heart, rapid, regular. Nose and throat, diphtheria when a child. Condition as compared with last examination: Has coughed almost continually for a year: spat blood on April 30th, 1903: raises considerable sputum in the mornings.

Symptoms, on admission, exam. June 2nd, 1903: Tubercle bacilli, in moderate numbers. Dyspnea, some on arrival. Hæmoglobin, per cent.,

eighty. Complication and tuberculosis of other organs: Heart, apparently normal. Nose and Throat, rhinitis very noticeable. Condition as compared with last examination: Is greatly below normal weight. Has troublesome catarrh. Teeth bad.

Symptoms, Nov. 11, 1903: Appetite, good. Sleep, good. Cough, slight. Sputum, slight muco-pur. Tubercle bacilli, none found. Hæmogoblin, per cent. eighty. Complications and tuberculosis of other organs: Gastro-intestinal, peri-anal abscess, with discharge containing tubercle bacilli. Heart, apparently normal. Condition as compared with last examination: Patient feels well, eats and sleeps well.

Symptoms, Feb'y 8th 1904: Cough, slight. Sputum, sero-purulent. Tubercle bacilli, none found in four trials. Hæmoglobin, 100%. Complications and tuberculosis of other organs: Fistula cured. Heart, apparently normal.



Symptoms, on discharge, April 5, 1904: none: Hæmoglobin, 100%.

Physical examination: General condition on admission: Nourishment fair. Weight, 138 lbs. Pulse, 99 per min. Respiration, 21 per min. Chest—inspection: Lower 6 dorsal spines more prominent than others. Shape, apices sunken. Palpation negative. Mensuration: Chest, exp. 80.3 c.m.; insp. 88.7 c.m.; exp. 8.4 c.m. Percussion: Right, comp. dull ant. from apex to 3d i.c.s. and post. from apex to near inf. angle of scapula. Left, apex is hyporesonant. Auscultation: Right, bronchial breathing and few moist clicks in Apex; ant. and post. musical rales all over lung. Left, roughened breathing, approaching bronchial in apex, with fine musical rales upon deep insp.

General condition, Nov. 11th, 1903: Nourishment, good. Weight, 154 lbs. Chest—Inspection: Well formed, well nourished and muscled. Mobility good—apparently same for both sides. Palpation: Mobility, good. Vocal fremitus, negative. Mensuration: Right chest, rest. 44, exp. 43, insp. 47.5. Left chest, rest. 44, exp. 43, insp. 46. Percussion: negative.

Auscultation: Breathing vesicular over whole chest, with exception of right axilla, where slight bronchial element present, few moist rales in i.s. regions post.

General condition Feb. 8th, 1904: Weight, 155 lbs. Chest—inspection negative. Palpation: Mobility, negative. Mensuration: Right chest, rest. 45, exp. 42, insp. 47. Left chest, rest. 45, exp. 42.5, insp. 48. Percussion, Negative. Auscultation: Negative.

General condition, April 5th, 1904, discharged: No physical signs: Weight, 153 lbs.

CONCLUSION.

Concluding, Gentlemen, I wish as a firm advocate of the merits of the arid southwest as a region peculiarly suited for the treatment of tuberculosis, to register a protest against the indiscriminate sending of consumptives to the high altitudes of that region. Cases otherwise eligible may under preliminary home treatment have their vital capacity so increased as to render them fit subjects for residence in high altitudes, or they may be sent with profit to the lower altitudes of the same general region, remembering that any desired altitude from 14,000 feet above sea level to localities which are below sea level can be had.

I wish to express my appreciation for the services rendered in preparing the statistics included in this article by Assistant Surgeon Roberts and Architect Thomas of the Sanatorium staff.

DISCUSSION.

DON. DAVID MATTO, of Peru, discussed the paper at some length but in the French language, which, unfortunately, the stenographer was not able to report.

SURGEON HENRY G. BEYER: I was sorry not to have heard the whole of this paper, but the remarks of the delegate from Peru were very apropos of the treatment of tuberculosis. I think this gradual ascent which he has mentioned, taking patients gradually from a lower to a higher altitude of the Andes is a very important point so far as the individualizing in the treatment of patients is concerned. I think this sudden ascent cannot do any good, either to a well man or much less to a man in the last stages of consumption. This certainly should be the treatment to be observed in any case in our own latitudes; even at such a small altitude as Mt. Washington the air rarefaction is distinctly noticeable although it is only 6000 feet high. I noted what Dr. Matto said in regard to the increase of red blood corpuscles. We have noted almost as great a percentage of increase in the red blood corpuscles in ascending a high mountain as he has. I do not think it is as yet plain whether it is the general lowering of atmospheric pressure

that causes such a revolution of the circulation as to call into activity corpuscles that lay quiescent in some organs, but the fact has been observed everywhere that a very decided increase of red blood corpuscles occurs.

SURGEON GENERAL WALTER WYMAN, P.H.&M.H.S.: I was unfortunate enough not to be able to hear all of the paper, but by the remarks I judge that the subject of low or high altitude has been one that has been under very serious discussion and consideration, and that a sudden ascent of patients of even 6000 feet may be inadvisable in some cases. Most of us know of instances in the earlier days in the West before the railroads were built when men were said to have been cured of tuberculosis by simply crossing the plains in the old fashioned wagon outfit. In that way they ascended very gradually. At the same time they had the outdoor life, and it has been under serious consideration, and is yet, whether we could not gain some good scientific deductions from the experiment, by starting, as it were, a peripatetic or ambulatory service, fitting out a wagon train and sending patients out along the old Santa Fe trail to our sanatorium in New Mexico. I would be glad to have from any gentleman listening to me any suggestions he may have to make in regard to the matter. I seriously contemplate making that experiment, selecting the cases to make the trial, having an organization effected and having the party camp on the trail. In one respect it would be very advantageous because they would have an object in view, and by the time the journey ended they would be glad to get to the sanatorium, and I believe the mental effect would be good. Now we send them there in first class passenger coaches and when they arrive there they are not fully appreciative of what they find. I do not mean to say that they are not appreciative, but not as much so as if they would arrive by a long journey overland. I throw out that suggestion in the hope of inviting some discussion of the project.

SURGEON H. G. BEYER, U.S.N.: I think the suggestion of Surgeon General Wyman is an excellent one. I think in most of our sanitariums tuberculosis patients suffer from ennui. The journey and surroundings prove rather a setback, and I think the peripatetic proposition advanced by the General would relieve that and would be a very powerful aid in the treatment, and at the same time it would give them occupation which would not allow ennui to take possession of them. The slight change of climate involved in those movements would adapt them by degrees to changing conditions. I hope the General will put his idea into execution at once.

Contemporary Comment.

RUSSIAN CONDITIONS IN MANCHURIA.

A CORRESPONDENT of the *London Times* deals with the Russian medical organization in Manchuria, of which he gives a very depressing account. He estimates that the total number of sick and wounded down to the time of the great action on the Sha-ho at 150,000, or about 30 per cent. of the total force in Manchuria. He states that of the 32,000 sick and wounded registered at the Central Board in Kharbin from June 15th to August 15th about one-fifth were wounded. During the first six months of the war the most common diseases were dysentery of a mild type and rheumatic fever. He hints that a good many men who were but little, if at all ill, contrived to be sent to the base hospitals in order to obtain two or three weeks' rest and better food. Several severe outbreaks of dysentery occurred among the younger soldiers of certain regiments, but their illness was generally attributed to the drinking of river water; preventive measures were prescribed by army orders, but the regimental medical officers took no trouble to see that they were carried out. After the month of July, typhus—by which we understand typhoid fever—increased rapidly, and caused much sickness and disability. Preparations for treating the sick and wounded had been made on a very large scale, not only by the War Office but by the Russian Red Cross Society and by the Zemstvos or county councils; in addition twenty-four hospital trains, most of them well, and some of them luxuriously equipped, were provided by private generosity, and were a great boon wherever available. Owing to the large number of sick and wounded the hospital accommodations were often inadequate, and this evil was intensified by imperfect organization and a

failure to provide an adequate number of beds at places where they were most wanted. The military medical staff of the Russian army is very insufficiently paid and is numerically quite incapable of grappling with the present emergency; in consequence a large number of civilian practitioners mostly of Jewish extraction, have been called upon to proceed to Manchuria. This improvised medical staff is said to have worked on the whole exceedingly well under very great disadvantages; for not only have the hospitals been overcrowded and the food supply frequently insufficient, but necessary dressings even have been wanting. The practice of issuing first aid dressings to the soldier customary in modern times, has not been followed systematically in the field, although an immense stock of such packets had been provided by the authorities.

THE JAPANESE ARMY LITTER.

THE *British Medical Journal* remarks that the poles of the Japanese Army litter are of bamboo, reducing the weight of the complete apparatus to twelve pounds, and



The Japanese Army Litter, Folded and Open

that it is supplied with a cover, and with folding legs, and hinged parts so as to pack closely for carrying empty as shown in the cut.

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BRIGADIER GENERAL CHARLES SUTHERLAND,
SURGEON GENERAL, U. S. ARMY.—1890-1893.

Editorial Expression.

The Surgeon Generals of the United States Army.

XVII. BRIGADIER GENERAL, CHARLES SUTHERLAND,
SURGEON GENERAL OF THE UNITED STATES
ARMY.—1890-1893.

GENERAL interest centered about the President's action with regard to the succession to Surgeon General Baxter, but President Harrison decided to follow the precedent established in the Baxter case and promote the senior Colonel in the Medical Department, Colonel Charles Sutherland.

Immediately junior to him were a number of able and experienced officers among whom it would have been exceedingly difficult to make a selection. Chief among these was Lieutenant Colonel Joseph R. Smith, who had served with the highest credit as Assistant Surgeon General and as Acting Surgeon General, during the Civil War and in many important positions throughout the intervening years. Colonel Charles Page, as titular Assistant Surgeon General, had a reasonable claim for promotion; and the merits of many others might well have been recognized had not the Executive determined to decide the question upon the basis of seniority.

General Sutherland was born in Philadelphia on May 10, 1831 and was the son of the Honorable Joel Barlow Sutherland, a physician, soldier, statesman and jurist of the Keystone state, and the first president of the Society of the War of 1812, of which General Sutherland was himself at one time the Historian. Young Charles received the best educational advantages afforded by the private schools of Philadelphia and completed his student life at Jefferson Medical College where the degree of M.D. was conferred upon him in 1849.

He was commissioned as an Assistant Surgeon in the Army August 5, 1852, after ten months service as an Acting Assistant Surgeon under a contract tendered him after passing the entrance examination for admission to the Medical Corps. His earliest military experience was at Fort Monroe which was followed by a short term at Jefferson Barracks rendered especially interesting to the young physician by an epidemic of cholera which prevailed among the troops. He then went into the field with a military exploring party which located the site of Fort Riley in Kansas and shortened the overland trail to Santa Fe, New Mexico.

He was then transferred to the Department of New Mexico where he served for five years with station from time to time at Forts Webster, Fillmore, Craig, Stanton and Santa Fe, and saw much service against Apache and Comanche Indians. After a year in the east, at Fort Moultrie, S. C. and on leave, he was ordered to the Department of Texas where he remained, serving meanwhile at Forts Davis and Duncan, until Texas seceded from the Union when he escaped capture by the Confederate forces and left the state with artillery and infantry troops for New York.

Upon his arrival in the North he reported at the Headquarters of the Army and a week later was ordered by General Scott on a secret expedition to Fort Pickens and Santa Rosa Island, Florida. The troops composing this expedition were among the first to take an active part in the War of the Rebellion, sailing from New York and arriving at their destination prior to the first call for volunteers issued by President Lincoln. He remained at Fort Pickens a year and during that time participated in two bombardments between the United States troops and the enemy on the mainland, and in an engagement between United States Volunteers and Confederates near his hospital, his conduct receiving special commendation from General Brown on each occasion.

On April 16, 1862, he was promoted to the grade of Major and assigned to Fort Warren, Mass., then used as a prison in which several hundred Confederate officers were confined and guarded by a regiment of volunteers. In the summer he was ordered to report to General Halleck at Corinth, Mississippi, and

assigned to duty as Medical Purveyor for the armies concentrated near that center of military operations. Later he located extensive medical supply depots at Columbus, Kentucky, where he provided for the medical necessities of two hundred thousand men, the estimated strength of General Halleck's command.

He then organized a second large supply depot at Memphis, Tenn. Here he fitted out nine general hospitals, with a capacity of three thousand beds, for the disabled among the forces on the Mississippi, and assisted in equipping a floating hospital of over eight hundred beds for the use of Grant's Army at Milliken's Bend near Vicksburg.

He was attached to the headquarters of General U. S. Grant where he served as Assistant Medical Director and also as Inspector of Camps and Transports of the Army of the Tennessee until the surrender of Vicksburg in July 1863. He participated in the battles of Jackson and Champion Hills and assisted in locating the field hospitals established after those engagements. During the siege of Vicksburg he was actively engaged in examining camps, transferring the wounded to transports for northern hospitals and in keeping his forces well supplied with medicines and hospital stores. Referring to this period in his memoirs, General Grant says that: "Troops could scarcely find dry ground on which to pitch tents. Malarial fever broke out among the men. Measles and small-pox also attacked them. The hospital arrangements and medical attendance were so perfect, however, that the loss of life was much less than might have been expected."

After the fall of Vicksburg, he was appointed Medical Director of the Department of Virginia and North Carolina under General Foster, with the supervision of five large general hospitals in addition to the troops in the field and later Medical Director of Hospitals and Parole camp at Annapolis, Md.

In the spring of 1864, Major Sutherland was detailed by the Secretary of War as Medical Purveyor for the Army of the Potomac and the hospitals in and about Washington with station in that city. The Army of the Potomac then included 150,000 men and the twenty general hospitals supplied had a capacity of

over 30,000 patients. This duty lasted until the close of the war, during which time spacious buildings were occupied by the constantly in- and out-flowing stream of supplies handled by a large force of workmen, and over \$4,000,000 was disbursed without loss or difficulty.

When the army was reorganized at the close of the Rebellion, in recognition of his distinguished services, he was without solicitation recommended by Surgeon General Barnes, with the hearty endorsement of General Grant, to be one of the medical purveyors with the rank of Lieutenant Colonel then established and on September 21, 1866 he accepted that commission. He was stationed for several years at the Washington and the New York Medical Purveying Depots, meanwhile receiving on June 26, 1876, promotion as Surgeon with the rank of Colonel. He then served as Medical Director of the Division of the Pacific from 1879 to 1884 and of the Division of the Atlantic until his appointment as Surgeon General of the Army, December 23, 1890.

General Sutherland was a man of magnificent proportions, standing over six feet two inches in his bare feet. He had a fine open face, with a strikingly military cast. He possessed a most amiable disposition and was a delightful companion as the writer learned during the three years in which he served with him at Governor's Island from 1887 to 1890, and where he had the pleasure of being the first officer of his Corps to congratulate him upon his promotion. His administration was conservative and progressive. He gave the Medical Department a new field equipment, but withdrew the personal equipment of surgical supplies which had hitherto been issued to each medical officer, making all officers dependent upon the Post Hospitals for these articles. Under his direction the Hospital Corps was developed, and a movement toward securing a new set of reports upon the hygiene of the army was inaugurated, the publication of which however was prevented by later orders. He was retired by reason of reaching the age limit, on May 29, 1893, and settled down in Washington where he died at his residence on Friday, May 10, 1895.

PRESIDENT ROOSEVELT ON ARMY MEDICAL REORGANIZATION.

THE personal military experience of the President of the United States together with his profound knowledge of the needs of the soldier, lends particular weight to a message sent by him to Congress on January 9, 1905, in which he remarks:

Message of the President. "I have, in a former message, stated to the Congress my belief that our Army need not be large, but that it should, in every part be brought to the highest point of efficiency. The Secretary of War has called to my attention the fact that the act approved February 2, 1901, which accomplished so much to promote this result, failed to meet the needs of one staff department in which all of our people are peculiarly interested, and of which they have a right to demand a high degree of excellence. I refer to the Medical Department. Not only does a competent medical service, by safe-guarding the health of the Army contribute greatly to its power, but it gives to the families of the nation a guaranty that their fathers, brothers, and sons who are wounded in battle or sicken in the camp shall have not only skilled medical aid, but also that prompt and well-ordered attention to all their wants which can come only by an adequate and trained personnel.

"I am satisfied that the Medical Corps is much too small for the needs of the present Army and therefore very much too small for its successful expansion in time of war to meet the needs of an enlarged Army and in addition to furnish the volunteer service a certain number of officers trained in medical administration. A bill which, in the opinion of the Secretary of War, of the late Secretary of War and of the General Staff of the Army, supplies these deficiencies was introduced at the last session of Congress and is now before you. I am also advised that it meets the cordial approval of the medical profession of the country. It provides an organization which, when compared with that of other nations, does not seem to err on the side of excessive liberality, but which is believed to be sufficient. I earnestly recommend its passage by the present Congress. If the Medical Department is left as it is

no amount of wisdom or efficiency in its administration would prevent a complete breakdown in the event of a serious war.

"I transmit herewith a memorandum which has been prepared for me by the Surgeon General of the Army, and also the remarks of the former and of the present Secretary of War with reference to this bill.

"THEODORE ROOSEVELT."

The following are the documents transmitted by the President with his splendid endorsement of the proposed legislation:

WAR DEPARTMENT,
OFFICE OF THE SURGEON GENERAL,
Washington, December 7, 1904.

The fact that mortality from disease in armies in war time greatly exceeds that from losses in battle is well known. The noneffective rate from sickness is even more greatly in excess of that from wounds.

Statement of the Surgeon General. The British army in the Peninsula, in spite of the many bloody battles, lost three times as many men from disease as from wounds. The infant French Republic was saved at

Valmy more by the paralysis of Prussian efficiency by ravage of disease than by that rather bloodless victory. General Scott in the Mexican war lost by disease one-third of his effective strength. The loss from disease in the civil war was more than double that from the casualties of battle. The military efficiency of newly raised armies is specially liable to be gravely compromised or even destroyed from this cause.

The three primary duties of the Medical Department are:

1. To preserve the effective strength of armies (military sanitation).
2. To care for the sick and wounded.
3. To conduct the administrative work of the department.

To carry out these objects requires a highly specialized and complex organization and a numerous trained personnel. Military sanitation is now recognized to be a well-marked specialty in medicine of which the average practitioner knows little more than he does of the methods of military medical administration. The second duty is that for which civilian physicians can be used to advantage, while the first and third must in the main be in the hands of trained medical officers in order to secure efficiency. The standard of what is regarded as a satisfactory degree of efficiency in all of these directions has been greatly raised in late years.

In the Spanish war the country was scandalized by a monthly death rate from disease which rose from 2.15 per thousand in July to 4.08 in August, but fell again to 2.45 in September. During the civil war a higher death rate from disease than the highest maximum above mentioned persist-

ed for many months, reaching in the spring of 1862 a maximum more than double it, without creating half as much popular clamor.

Nor would such occurrences be possible now in civilized warfare as for 600 wounded to lie for more than ten days on the battlefield, as happened after the second battle of Bull Run, on August 30, 1862, when many of the wounded died of starvation. That this was not one of the unavoidable horrors of war, but was, as stated by the Surgeon General in reporting these facts, due to defective medical organization is evidenced by the fact that after the organization of the ambulance service of Letterman such occurrences ceased in the Army of the Potomac. After the great battles of Fredericksburg, December 13, 1862, and Chancellorsville, May 2, 1863, for instance, although the army was defeated, the field was cleared of wounded without confusion or delay.

The public sentiment of the civilized world therefore demands better organization and higher efficiency for the medical department of armies than at any time heretofore. Other nations, including even so poor a nation as the Japanese, are willing to pay the cost of increased efficiency in the shape of a large and well organized medical service, and it is not to be believed that Congress or the American people will refuse for our Army what is demonstrated to be essential to avoid future failure and insure efficiency. For medical efficiency a certain number of trained medical officers is necessary to direct matters of military sanitation, and, in the words of Mr. Root, "to conduct the administration of the great and complicated medical service." The measure of this number is given by the Secretary of War in his report for this year, as follows (p. 25):

It is evident that a staff department which has a personnel insufficient to perform the duties required of it in time of peace can not be successfully expanded to meet the increased responsibilities of war. The commissioned personnel of the Medical Department is nearly 200 short of the number required to perform its work at present, and the deficiency has to be made good by the employment of civilian physicians under contract. This is an expensive and unsatisfactory expedient in time of peace, while in time of war it heavily handicaps the efficiency of the Department.

This principle was not recognized in the reorganization of the Army in 1901. The increase in the Medical Department at that time was so inadequate that the proportion of medical officers to the Army at large was not increased, but greatly diminished and was made considerably less than the proportion existing at the beginning of the Spanish war or the civil war—this in spite of the recommendation of the Dodge Commission that the regular corps be increased.

Instead of giving an advocate's discussion of the bill now before Congress I prefer to refer the President to the impartial opinion of the experts of the Third Division of the General Staff as given in their report on it made to the Chief of Staff, which is to be found on pages 6, 7 and 8 of the report of the Senate Military Committee. (Report No. 2420).

The attention of the President is especially asked to the following points:

The Army is today officered for a strength of 100,000 men except the Medical Department, which is only sufficient for 42,000.

An adequate increase in the Medical Corps was recommended by the Dodge Commission.

This bill offers in the words of Secretary Taft "a complete workable system."

With a less number than that asked for, the Medical Department can not perform the duties with which it is charged by Army Regulations in time of peace, or be successfully expanded to meet the increased labors and responsibilities of war.

With a less proportion in the higher grades it cannot attract properly qualified candidates to fill the vacancies created.

The Reserve Corps constitutes an eligible list of competent civil physicians who will reinforce the regular Medical Corps in time of war or other emergency.

The increase of cost is, when the enlargement is completed four years hence, only a little over four per cent above the present cost of the Medical Corps, while next year it will actually be diminished under this act.

The increase of efficiency is as 320 is to 450 or about 40 per cent.

This bill has received the rigid scrutiny of the General Staff and the approval of Secretary Root, of Secretary Taft, of the Military Committee of the Senate, and of the American Medical Association.

Respectfully submitted.

R. M. O'REILLY,
Surgeon General.

WAR DEPARTMENT,
Washington, January 30, 1904.

I heartily approve this bill in principle. I consider that it will be greatly to the benefit of the service to abandon the employment of contract surgeons and substitute in their place regular commissioned officers. I do not think the number to which it is proposed to increase the Medical Corps is at all excessive. It seems to me that the presentation of the case by the Surgeon General in regard to the necessities of skilled administration of the medical service in time of war is conclusive. It will be easy in time of war to secure an adequate number of physicians competent to treat the sick and wounded, but it will be impossible to secure medical men competent to conduct the administration of the great and complicated medical service unless they are specially trained in time of peace. The lack of a sufficient number of such trained officers in the past has caused untold suffering and the sacrifice of many thousands of valuable lives. It is our pres-

**Endorsement
of Ex-Sec-
retary Root.**

ent duty to see to it that such a condition shall never exist again. I believe that that can be accomplished only by following the course which has now been indicated by the Surgeon General and approved by the General Staff.

Upon the single question of the relative proportion of majors, lieutenant colonels, and colonels which should properly be accorded to the Medical Corps, the Surgeon General wishes to ask reconsideration by the General Staff. That single question, with the assent of the Chief of Staff, will accordingly be relegated to the General Staff for further consideration. Upon all other questions I approve the bill in detail.

LILIU ROOT,
Secretary of War.

WAR DEPARTMENT,
Washington, February 18, 1904

SIR: I have the honor to transmit herewith a bill to increase the efficiency of the Medical Department of the United States Army, together with the approval by my predecessor, Secretary Root, of the bill in every part except as to the relative proportions of majors, lieutenant colonels and colonels which should properly be accorded to the Medical Corps.

Endorsement of Secretary Taft.

The question was remitted to the General Staff for further consideration and has been returned with the recommendation that the number of colonels be limited to twelve, the lieutenant colonels to eighteen, with 110 majors and 300 captains and first lieutenants: whereas the recommendation of the Surgeon General is that the colonels number twenty, the lieutenant colonels twenty, majors 110, and captains and lieutenants 300.

It appears that the division of the General Staff to which the bill was referred approved the proportion of the colonels and lieutenant colonels as recommended by the Surgeon General, but that the War Department General Staff as a body, when the exact point was submitted to them, made the recommendation as above. General Chaffee was not present, I am informed at the meeting of the General Staff, and possibly did not have the advantage of all the statements which were made with reference to the proper number of medical officers for each tactical unit in the field. Certainly the evidence introduced by the Surgeon General shows that the number necessary for each tactical unit is considerably greater than that which must have been assumed by General Chaffee in the conclusion which he reached. Of course I must differ from the opinion of the General Staff and the distinguished chief of that body with great diffidence in view of the short time that I have been in the Department. I have, however, read the arguments carefully of the Surgeon General and the statement of the third division of the General Staff and also of the Chief of Staff, and I am bound to say that

it seems to me that the arguments of the Surgeon General substantially outweigh those advanced by the Chief of Staff. The Surgeon General's report shows a complete workable system which the amendment by the General Staff truncates and destroys the symmetry of. Then, too, the prospect of promotion which the increased number in the higher grades offers to those who enter the service seems to be absolutely essential to procuring good material for the Medical Corps. The increased expense in securing a proper medical education in modern days, as shown by the lengthening of the term of preparation from two to four years, and the great professional rewards in civil life make it highly important that there be offered a due prospect of promotion to young men of ability to induce them to enter the Corps.

In deference to the opinion of the General Staff, however, I have concluded to recommend a reduction in the number of colonels and an increase in the number of lieutenant colonels, so that the bill should provide for sixteen colonels and twenty-four lieutenant colonels, and this I do after a conference with the Surgeon General who is willing to accept the amendment.

I do not approve that amendment to the law which limits the examination of a lieutenant colonel, necessary to his promotion to a colonelcy, to an examination of his physical condition, his moral character and his past record in the service, and it seems to me that the examinations ought to be continued to the highest rank, except that of Surgeon General, which grade is filled, of course, only by selection. Such a requirement will have the effect of preventing the upper grades from being regarded as places of leisure and as not entailing the hard, enthusiastic work which is found in the lower ranks.

I have the honor to recommend the passage of the bill amended as suggested. I believe it to be of the utmost importance in securing a proper and efficient Medical Corps.

I accompany this letter with the bill and with the communications received by me from the Surgeon General, the Third Division of the General Staff and the Chief of Staff.

Very respectfully,
WM. H. TAFT,
Secretary of War.

The Chairman Committee on Military Affairs,
House of Representatives.

[NOTE.—The bill as finally sent to Congress was altered so as to be in accord with the views of the Secretary of War as expressed above.]

In this connection the report by the General Staff upon the subject is valuable as showing the profound consideration given to the proposition before its submission to Congress.

[Memorandum Report No. 7 on the reorganization of the Medical Department.]

THIRD DIVISION GENERAL STAFF,
Washington, January 13, 1904.

The Surgeon General submits a bill in tentative form "To increase the efficiency of the Medical Department of the United States Army," accompanied by memoranda explaining the character and object of the proposed legislation.

**Report
of the Gen-
eral Staff.**

The object of the reorganization proposed is to increase efficiency and provide the means for successful expansion in time of war or other emergency.

The recommendations made are:

1. That the organization shall consist of a Surgeon General, with rank of brigadier general; a Medical Corps; a Medical Reserve Corps; a Dental Corps; a Hospital Corps, and a Nurse Corps.

2. That the Medical Corps shall consist of 20 colonels, 20 lieutenant colonels, 110 majors, and 300 captains and lieutenants.

3. That the existing cumbersome grade titles be dropped, and the titles colonel, Medical Corps; captain, Medical Corps, etc., be substituted.

4. That no officer of the Medical Corps shall be promoted, other than to the grade of Surgeon General, until he has passed a satisfactory examination.

5. That no officer of the Medical Corps shall be granted a second examination except in extraordinary cases and by special authority of the Secretary of War, and the recommendation includes, it is learned, the condition that there shall be no delay in any reexamination granted; that any officer of the Medical Corps who fails in physical examination and is found incapacitated for service by reason of physical disability contracted in line of duty, shall be retired with the rank to which his seniority entitled him to be promoted; that captains and lieutenants who fail to pass a satisfactory examination for promotion, other than physical, shall be honorably discharged from the Army with one year's pay; that majors and lieutenant colonels who fail in examination other than physical, shall be permanently debarred from promotion and the officer next in rank found qualified shall be promoted to the vacancy.

6. That first lieutenants, upon completion of three years' service, shall be promoted to the grade of captain if found qualified by examination.

7. The memoranda recommend in addition to the bill that twenty-five per cent of the increase proposed be made in each grade annually until the full number is reached.

The various recommendations are very fully and clearly considered in the memoranda accompanying the proposed bill, and will not be repeated in such detail as is there given.

Recommendation 1 involves the substitution of a reserve medical corps for the existing system of employing contract surgeons. The arguments presented in favor of such a change appear most convincing, and the change would unquestionably result in economy and efficiency, the object being to induce young medical graduates of good character and ability to qualify for a reserve corps by a few years' service with troops, and thus form a trained and tested reserve for time of war or other emergency.

The names of members of such reserve would be on the rolls of the War Department, and they would undoubtedly be impelled by patriotic motives to temporarily leave private practice for the public service upon the outbreak of war. The proposed reserve medical corps is quite similar to that provided in section 23 of the militia act, approved January 21, 1903, as a reserve body of persons qualified to hold commissions in any volunteer force which may hereafter be authorized under authority of Congress. All proper restrictions as to appointment and service seem to be provided. It will be noted that there is no expense attached to the medical reserve corps until it is called into actual service. The reference to the dental corps appears as a simple matter of wording, not affecting materially existing law. No change is suggested in existing organization of Hospital and Nurse Corps.

Recommendation 2 provides for an increase of the Medical Corps from 320 commissioned officers to 450 commissioned officers, and the employment in addition of 50 commissioned officers of the reserve corps. The proposed increase is more apparent than real: the number of medical officers now authorized by law, including contract surgeons, is greatly in excess of the 450 commissioned officers and 50 reserve corps officers proposed. The increase is in reality a substitution of 130 commissioned officers for that number of contract surgeons and the use of reserve corps officers if additional medical officers are required and provided for by Congressional appropriation. In 1868 177 medical officers were required for an Army of 25,000 men, and in addition to such number private physicians had at times to be employed. At that time there were ninety-three garrisoned posts. The Army has been increased fourfold, and the number of garrisoned posts, including Alaska and the Philippines, has increased to about 245.

While there may be anticipated a possible decrease in the number of medical officers required in the Philippines and a possible slight concentration and abandonment of a very few posts in the States, the latter will undoubtedly be offset by the increase in sea-coast fortifications and the attendant artillery posts. The number of medical officers employed at the present time is 497, of which 195 are contract surgeons. It does not seem probable that conditions will arise in the near future that will call for a less number of medical officers than are at present required. The arguments presented in the memoranda and other information secured relating to desirability of increasing the number of commissioned officers of the Medical Department organizing a reserve medical corps and abandoning the present system of

employing contract surgeons, appears to be full and convincing, and in view of the number of medical officers now found necessary and authorized, it does not appear that the number proposed, 450, is excessive.

The subdivision of grades is such as will bring the Medical Corps of the Army approximately on a par with the Medical Corps of the Navy and bring it in close relation, as regards prospective promotion to grade of field officer, with the Corps of Engineers, the only other army corps with which comparison can now be made. The field officers would constitute only one-third of the total number, which is not in any way excessive, and is the least percentage that will provide such promotion as is necessary to draw to the corps, or retain in the service, the most efficient young men. The percentage of field officers to total number in Medical Corps previous to 1901, was about thirty-eight. By the act of February 2, 1901, such percentage was reduced to twenty-five. In the statement presented it is shown that under present organization the larger portion can not expect to ever pass beyond the rank of major. The effect of the reduction in future prospects made by the act of February 2, 1901, has been to gradually reduce the number of admissions to Medical Corps from seventy-nine in 1901 to twenty-seven in 1903, and in spite of various concessions in standard of admission there still remain eighteen vacancies.

There have been eleven resignations from the corps since the passage of the act of 1901, while there was but one during the three years preceding. The organization of the Navy Medical Corps (with which the Army Medical Corps competes for new members) is far more advantageous to young men, and such fact is said to be used by the Navy Medical Corps to its advantage in the securing of young officers. The facts given, which are based on actual experience, appear to show conclusively that the change of organization provided by the act of February 2, 1901, had resulted and will continue to result in disadvantage to the Medical Corps of the Army, and that the inducements which can now be offered to young men as to future prospects will not draw to the corps or retain in the service the most efficient. A table submitted with the memoranda shows that the proposed change of organization will result in but slight, if any, additional cost to the United States.

The Surgeon General recommends that the division of field officers into grades be as follows: Twenty colonels, twenty lieutenant colonels, and one hundred and ten majors. Such organization is almost identical as to proportion with the organization of the Medical Corps of the Navy, with which it appears more proper to compare it than with other army corps, and it is believed the proposition recommended is just and necessary to secure and maintain an effective Medical Corps. A list of stations and duties submitted with statement shows the position in which the various grades proposed can be used properly and to advantage.

Recommendation 3 relates to titles of grades, and the change proposed appears in the interest of simplicity and is desirable.

Recommendation 4 provides for continuing examination for promotion through all the grades, and must result in increasing the efficiency of the Medical Corps.

Recommendation 5, so far as it relates to reexaminations, appears proper in the form presented, or in a substituted form, under consideration by the Surgeon General requiring action upon question of reexamination by a medical board and Surgeon General. The recommendation relating to retirement for disability incurred in line of duty is a proper one; the recommendation also provides for the discharge, with one year's pay, of first lieutenants and captains who fail to pass examination other than physical, and for the permanent debarment from promotion of majors and lieutenant colonels who fail on other than physical examination. In the matter of first lieutenants and captains the provision appears a proper one; also in case of majors and lieutenant colonels, in the light of the information given by the Surgeon General as to the character of examination proposed, and other matters pertaining to the proper duties of such field officers.

Recommendation 6 provides that first lieutenants, upon the completion of three years' service, if qualified by examination, shall be promoted to the grade of captain. This provision is the same as is provided for Navy Medical Corps and is the same as in the English service. The present provision is five years, which may have been proper at one time, but owing to great advance in the standard of medical knowledge, the curriculum has been extended to four years in addition to the time required for securing a collegiate education and a degree and the year of hospital experience required. With the three years limit but few, if any, would reach the captain's grade at a less age than 30 years and the average age would be materially higher.

Recommendation 7 is that the increase proposed in each grade be limited to twenty-five per cent annually until the full number is reached, which recommendation is approved.

The third division of the General Staff is of the opinion that the legislation proposed in the tentative form of bill submitted with the memoranda of the Surgeon General is fair and in the interest of the efficiency of the Medical Corps of the Army and recommends it for approval.

As has been stated in this report, it does not, in the opinion of the third division of the General Staff, appear probable that the number of medical officers required will ever be any less than at present, unless a future reduction of the Army is considered. Any material reduction of the Army would probably be accompanied by legislation providing for any resulting necessity for reduction in staff corps or departments. Any moderate reduction in the medical corps can be provided for by not filling vacancies as they occur. It will be noted the present reorganization contemplates the addition of thirty-two officers the first year, and the same number each succeeding year until the total is reached. But should it be considered advisable to reduce the proposed number of the permanent corps, and provide for additional medical attendance by the employment of more officers of the reserve corps than

is herein before considered, the question will arise as to the propriety of reducing proportionately the number of field officers proposed.

It is not believed any possible future reduction would materially reduce the number of responsible positions to which field officers could properly be assigned, such responsibility being, of course, the same whether the total number of medical officers is made up of a permanent force or of officers from the reserve, and if a reduction of the total is considered necessary, such reduction might well be made in the number of captains and lieutenants. If, however, such reduction of field officers is to be considered, the following figures are presented as preserving the ratio of thirty-three per cent of field officers, considering only permanent portion of force:

For a total permanent force of 400, one brigadier general, eighteen colonels, eighteen lieutenant colonels, ninety-nine majors, 264 captains and lieutenants.

For a total permanent force of 350, one brigadier general, sixteen colonels, sixteen lieutenant colonels, eighty-six majors, 232 captains and lieutenants.

No consideration has been given to the form of the bill, and should the recommendation herein made be approved it is understood the tentative form of bill will be referred to the first division of the General Staff for its action before the matter is submitted to Congress.

A proposed bill for increasing the efficiency of the Corps of Engineers has been under consideration in connection with the bill herein considered, and a report thereon has this date been submitted. It is suggested that if such report be also approved whatever legislation it is decided to recommend in these premises may most properly be combined in one bill.

A. MACKENZIE,

Colonel, General Staff, Chief Third Division.

(Through Brig. Gen. Tasker H. Bliss, assistant chief of staff.)

JANUARY 14, 1904.

Approved: This report was considered and adopted by the third division in full committee

TASKER H. BLISS,

Brigadier-General U. S. Army, Assistant to Chief of Staff.

The Bill passed the Senate on January 5th without change except the introduction of a clause providing that Lieutenants having prior service in the Volunteers or in the Medical Reserve, while they may have the benefit of that service in computing pay and allowances, shall be promoted only upon the completion of three years service in the grade of Lieutenant in the Medical Corps.

News of the Services.

Surgeon A. R. Alfred, U.S.N., ordered from the Solace to the Naval Station, Cavite.

P. A. Surgeon J. W. Ames, P.H.&M.H.S., promoted Passed Assistant Surgeon, November 4, 1904.

Dr. Leonard P. Bell, U.S.A., sailed on the transport Thomas from San Francisco to Manila.

P. A. Surgeon W. L. Bell, U.S.N., granted three months sick leave.

Lieutenant Colonel Albert H. Briggs, N.G.N.Y., was honored on the twenty-fifth anniversary of his entrance into the service with the brevet of Lieutenant Colonel. The Buffalo press cordially applauds the well deserved recognition accorded to Colonel Briggs.

Lieutenant Carroll D. Buck, U.S.A., ordered to Fort Leavenworth, Kans.

P. A. Surgeon C. S. Butler, U.S.N., ordered from the Constellation to the Naval Hospital, San Juan, P. R.

Surgeon H. R. Carter, P.H.&M.H.S., detailed as delegate to the Pan-American Medical Congress.

P. A. Surgeon W. M. Carton, U.S.N., ordered home from the Naval Hospital, Yokohama.

Dr. Albion McD. Coffey, U.S.A., ordered from Joplin, Mo., to Fort Worden.

Major William B. Davis, U.S.A., ordered from Honolulu to the Philippines.

Dr. S. Chase de Krafft, U.S.A., ordered for duty with the Battalion of Philippine Scouts, St. Louis, Mo.

Major George D. Deshon, U.S.A., promoted to Major.

Lieutenant John R. Devereux, U.S.A., ordered from Fort Meade to Fort Logan.

Dr. Clarence F. Dickenson, U.S.A., arrived at San Francisco on the transport Sheridan, December 15, 1904.

A. A. Surgeon D. M. Echemendia, P.H.&M.H.S., died at Havana, Cuba, December 19, 1904.

Assistant Surgeon M. K. Elmer, U.S.N., ordered from the Hancock to the New York Naval Hospital for treatment.

Medical Director N. M. Ferebee, U.S.N., retired for disability.

Dr. Bruce Ffoulkes, U.S.A., granted one month's leave with a month extension.

Major Henry C. Fisher, U.S.A., ordered to the Philippines, April 1st, 1905.

Dr. Charles E. Freeman, U.S.A., arrived at San Francisco on the transport Sheridan, December 15, 1904.

P. A. Surgeon L. D. Fricks, P.H. & M.H.S., ordered from La Guayra, Venezuela, to New York.

Lieutenant Charles C. Geer, U.S.A., retired for disability.

Assistant Surgeon A. J. Geiger, U.S.N., ordered to the Prairie.

Major William W. Gray, U.S.A., ordered to the Philippines, April 1st, 1905.

Dr. Samuel A. Greenwell, U.S.A., ordered to Fort Barrancas.

Surgeon W. B. Grove, U.S.N., placed on waiting orders from the Atlanta.

Surgeon A. C. Grunwell, U.S.N., ordered from the Dixie to the New York Naval Hospital for treatment.

Colonel John D. Hall, U.S.A., ordered home from the Philippines.

Dr. Morris J. Hansen, U.S.A., sailed on the transport Thomas from San Francisco to Manila.

Captain E. H. Hartnett, U.S.A., granted three months leave.

Dr. Melville A. Hays, U.S.A., ordered to Vancouver Barracks, Wash.

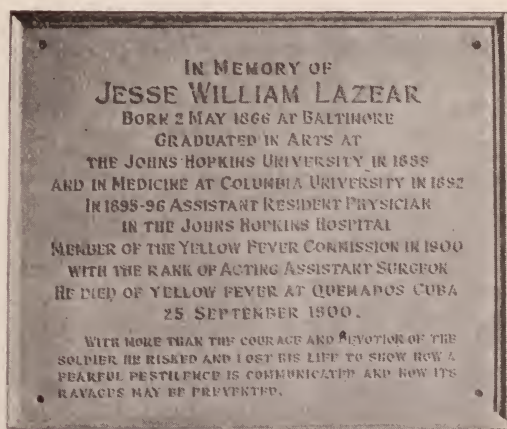
Major Frank J. Ives, U.S.A., ordered to the Philippines.

A. A. Surgeon W. H. Janney, U.S.N., ordered from the Marcellus to the Caesar.

Major William P. Kendall, U.S.A., ordered to the Philippines, March 1st, 1905.

P. A. Surgeon J. T. Kennedy, U.S.N., ordered to the naval station, Guantanamo, Cuba.

Dr. Jesse W. Lazear, U.S.A. — Much military medical interest is attached to the recent unveiling of a tablet in the new clinical amphitheatre of the Johns Hopkins Hospital to Dr. Jesse W. Lazear, late Contract Surgeon, U.S.A., who sacrificed his life to science in the investigation by experimentation upon his own person of the agency of the *Stegomyia fasciata*



mosquito in the transmission of yellow fever. A committee of Johns Hopkins alumni raised \$2,500.00 and expended a small portion of the amount upon the memorial here illustrated, devoting the remainder of the sum to the benefit of Dr. Lazear's children.

P. A. Surgeon R. E. Ledbetter, U.S.N., ordered from the Lancaster to the Dixie.

Dr. Robert Lemmon, U.S.A., ordered from Fort Dupont to Fort Terry for temporary duty and thence to Fort McKinley.

P. A. Surgeon L. L. Lumsden, P.H.&M.H.S., ordered from the New York Immigration Depot to Philadelphia.

A. A. Surgeon P. F. McMurdo, U.S.N., ordered from the League Island Navy Yard to the Baltimore Naval Recruiting Station.

Captain Charles E. Marrow, U.S.A., granted three months leave.

Lieutenant George W. Mathews, U.S.A., ordered for examination for promotion.

Surgeon V. C. B. Means, U.S.N., ordered to the Philadelphia Naval Hospital.

Major Edgar A. Mearns, U.S.A., granted thirty days leave.

Surgeon C. D. Norton, U.S.N., granted three months sick leave.

Major William O. Owen, U.S.A., ordered before a retiring board.

P. A. Surgeon J. E. Page, U.S.N., ordered to the Lancaster.

P. A. Surgeon J. H. Payne, U.S.N., ordered from the Marietta to waiting orders.

Assistant Surgeon T. N. Pease, U.S.N., ordered from the Hartford to the Columbia.

Surgeon J. C. Perry, P.H.&M.H.S., detailed as delegate to the Pan-American Medical Congress.

Assistant Surgeon C. P. Pierce, P.H.&M.H.S., detailed as delegate to the Pan-American Medical Congress.

Surgeon F. L. Pleadwell, U.S.N., ordered from the Naval Dispensary, Washington to the Naval Hospital, Yokohama.

P. A. Surgeon R. W. Plummer, U.S.N., detached from the Naval Hospital, San Juan, P. R., with a month's leave.

Lieutenant John J. Reilly, U.S.A., ordered from Jackson Barracks to Fort Bayard for treatment.

Lieutenant John J. Reilly, U.S.A., ordered to the Army and Navy General Hospital, Hot Springs, Ark. for treatment.

Dr. Hugo C. Rietz, U.S.A., returned to Fort Sheridan from leave.

P. A. Surgeon S. S. Rodman, U.S.N., ordered to the Pensacola.

P. A. Surgeon M. J. Rosenau, P.H.&M.H.S., delegate to represent the service at the annual meeting of the Mosquito Exterminating Convention and Society of American Bacteriologists.

Medical Director John W. Ross, U.S.N., retired upon reaching the age limit but retained on duty with the Isthmian Canal Commission.

Assistant Surgeon T. W. Salmon, P.H.&M.H.S., ordered from Philadelphia to the New York Immigration Depot.

P. A. Surgeon J. W. Schereschewsky, P.H.&M.H.S., promoted Passed Assistant Surgeon November 11, 1904.

A.A. Surgeon F. E. Sellers, U.S.N., ordered from Gloucester to the Franklin.

Major Paul Shillock, U.S.A., ordered to the Philippines, May 1st, 1905.

Lieutenant J. R. Shook, U.S.A., ordered to Fort Des Moines, Iowa.

Lieutenant Joseph F. Siler, U.S.A., ordered from Fort Logan to Fort Meade.

Brigadier General Charles Smart, U.S.A., retired on account of disability.

Surgeon Alexander C. Smith, P.H.&M.H.S., promoted Surgeon, December 17, 1904.

Dr. Frederick H. Sparrenberger, U.S.A., returned to Fort Mott from leave.

Captain Alexander N. Stark, U.S.A., ordered to the Philippines.

Surgeon John M. Steele, U.S.N., ordered from the Baltimore Naval Recruiting Station to the Colorado.

Captain Henry R. Stiles, U.S.A., ordered for examination for promotion.

Assistant Surgeon A. Stuart, U.S.N., ordered from the Naval Hospital, San Juan, P. R., to Washington for examination for promotion, and thence home on waiting orders.

Lieutenant Verge E. Sweazey, U.S.A., ordered to Washington General Hospital for treatment.

P. A. Surgeon John S. Taylor, U.S.N., ordered from the Relief to the Ohio.

Assistant Surgeon H. M. Tolfree, U.S.N., ordered to the Hancock.

Lieutenant Wilfrid Turnbull, U.S.A., ordered for examination for promotion.

Dr. George B. Tuttle, U.S.A., sailed on the transport Thomas from San Francisco to Manila.

A. A. Surgeon J. Tuttle, P.H.&M.H.S., granted one month's leave.

P. A. Surgeon R. H. von Ezdorf, P.H.&M.H.S., ordered to quarantine duty in the Isthmian Canal Zone.

P. A. Surgeon C. W. Wille, P.H.&M.H.S., promoted Passed Assistant Surgeon, November 25, 1904.

Dr. Egerton T. Wilson, U.S.A., arrived at San Francisco on the transport Sheridan, December 15, 1904.

P. A. Surgeon R. L. Wilson, P.H.&M.H.S., promoted Passed Assistant Surgeon, November 1, 1904.

Major Francis A. Winter, U.S.A., ordered to the Philippines, March 1st, 1905.

Major Charles E. Woodruff, U.S.A., publishes in a recent number of

American Medicine an interesting piece of satire under the title of "The Maternal Impressions of a Military Surgeon."

Captain R. S. Woodson, U.S.A., ordered from Fort Clark to Fort McDowell.

Dr. Stephen Wythe, U.S.A., returned to San Francisco, Cal., from leave.

Lieutenant John D. Yost, U.S.A., ordered to Honolulu, Hawaii.

Assistant Surgeon R. M. Young, U.S.N. resignation accepted.

THE HAGUE CONGRESS, among other important questions, will deal with the question of hospital ships, a feature of especial interest to military surgeons.

BLACKBALLED SURGEONS VINDICATED.—A survival of mediaevalism appeared in the blackballing of seventeen officers of the Royal Army Medical Corps for election to membership in the Junior United Service Club of London a few weeks ago. This action excited great indignation throughout the Club membership, and at a general meeting, held a short time after, the vote was reversed and the medical officers promptly elected. The affair has created a great deal of discussion in English military circles and it is said that an army medical club is likely to be started in London as a result.

DISEASE AND WOUNDS IN THE JAPANESE ARMY.—The United Service Gazette says, "An interesting table has been published by the Japanese Naval Authorities, showing the casualties due to the war as compared with those due to normally operative causes. This table shows two things: first, that the number of casualties resulting from fighting is extremely small compared with the number from disease; and, secondly, that the fact of being engaged in an arduous campaign which has involved constant exposure and hard labor for many months, has not at all raised the proportion of sick. This table does not, however, include deaths in battle.

THE ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE of the United States, for the fiscal year 1904, makes a superb volume of 677 pages and gives a most interesting and valuable picture of the work of this progressive branch of our national medical services.

THE ANNALS OF SURGERY celebrates its twentieth anniversary by the issue of the finest single number which the writer has ever seen in medical journalism. The Military Surgeons extend to the editors and publishers cordial congratulations upon this worthy culmination of so many years of masterly effort and successful labor.

Current Literature.

INTERNATIONAL MILITARY MEDICAL STATISTICS.*

THIS pamphlet comprises a series of tables containing the medical statistics of the American Army according to the plan agreed upon by the International Commission for the Unification of the Medical Statistics of Armies, as finally determined at Madrid in 1903. The tables are nine in number and show (1) in absolute numbers, by departments, the mean strength of the command, the admissions to quarters, to hospital, and total admissions; the disposition of the sick, total, the number returned to duty, died, and otherwise disposed of, together with the total number of days of sickness. (2) The same data in ratios per 1,000, together with the days lost per soldier and per admission. (3) By arms of service, the mean strength, the total admissions, and those to hospital only, the total disposition, and the number returned to duty and died. (4) The same data by months. (5) For each of twenty-two of the larger garrisons, the mean strength, admissions to hospital, total admissions and deaths. (6) For each of the thirty-five diseases or disease groups agreed upon by the International Commission, the number remaining under treatment at the beginning and close of the current year, the admissions and dispositions for the year, the total sick days, and the average number of days per case. (7) The same data by arms of service. (8) The same data as the preceding by months. (9) Deaths by rank, by length of service, and by age. (10) The same data referred to discharges for physical disability. These tables uniformly computed throughout the armies of the world, will, in a few years, form the basis of an invaluable series of statistics, and we warmly welcome their inauguration.

*The International Military Medical Statistics for the Year 1903, Supplement to the Annual Report of the Surgeon General of the Army for the year 1904, 4to; pp. 12, Washington, Government Printing Office, 1904.

'APPLETON'S MEDICAL DICTIONARY.*

THIS magnificent work of nearly two thousand pages is a fine picture of the wide field which the medical sciences cover at the beginning of the Twentieth Century, and is the result of an enormous amount of original investigation and extensive reading upon which the editor and his collaborators have been engaged for many years. It is noteworthy for the fullness with which its topics are considered and is destined to take a highly authoritative position in medical lexicography. It is especially handsomely printed, the words defined being given in a particularly clear and distinct typography, while the general text is also clearly brought out. The qualities of accuracy, convenience of arrangement, and comprehensiveness which the authors design to develop in the work are evident in every part of the book.

VON BERGMANN'S SURGERY.†

THE volumes of von Bergman's Surgery translated and edited under the supervision of Dr. William T. Bull of New York have come out with remarkable rapidity. The fourth volume of this magnificent work, is devoted to the surgery of the alimentary tract, including the oesophagus, the abdominal wall, the peritoneum, the stomach and intestines, hernia, the liver and biliary passages, the spleen and the pancreas. As would be expected this part of the work is fully up to date and the most advanced and progressive attitude is taken toward the treatment of diseases and injuries of the part under consideration. This volume is rather more fully illustrated than some of the others which adds materially to its serviceability.

***Appleton's Medical Dictionary.** An illustrated dictionary of medicine and allied subjects in which are given the derivation, accentuation and definition of terms used throughout the entire field of medical science. Edited by FRANK P. FOSTER, M.D. Imp. 8vo; pp. 1991. With numerous illustrations. New York and London, D. Appleton & Co., 1904.

†**A System of Practical Surgery.** By E. VON BERGMANN, P. VON BRUNS and J. VON MIKULICZ. Translated and edited by WILLIAM T. BULL and others. Volume 4. *Surgery of the alimentary tract.* 8vo; pp. 757 with numerous illustrations. New York and Philadelphia. Lea Brothers & Co. 1904.

The section on intestinal operation is particularly interesting, including as it does a full chapter profusely illustrated upon the affection now so well known under the name of appendicitis, written by Professor Mikulicz and Dr. Krausch.

ENLARGEMENT OF THE PROSTATE.*

THE appearance of a third edition of Mr. Mansell Moullin's monograph on prostatic enlargement is significant of the importance of the subject as well as of the excellent and interesting manner in which the author has treated his subject. The work is, as is well known, a plea for surgical treatment and the author's further experience amply confirms the opinions expressed in his Hunterian lectures wherein they were originally announced.

SURGICAL ANATOMY.†

THIS little guide is a product of the Manchester Medical School and is designed to bring into convenient form surgical anatomical facts for reference by students with rather more attention to dental anatomy than is usually given.

BOSTON'S CLINICAL DIAGNOSIS.‡

THE rapid progress of clinical and laboratory diagnosis renders this handsome work peculiarly useful at the present time. It is an exceptionally complete, well rounded, comprehensive and explicit treatise upon the subjects comprised

***Enlargement of the Prostate.** Its treatment and Radical Cure. By C. MANSELL MOULLIN, M.D., F.R.C.S. 3rd edition. 8vo; pp. 204 with 3 plates. Philadelphia. P. Blakiston's Son & Co., 1904.

†**Handbook of Surgical Anatomy.** By G. A. WRIGHT, F.R.C.S. and C. H. PRESTON, F.R.C.S. 12mo. pp. 202. Philadelphia. Blakiston's Son & Co., 1904.

‡**A Text Book of Clinical Diagnosis by Laboratory Methods.** By L. NAPOLEON BOSTON, M.D. 8vo; pp. 547 with 320 illustrations many in colors. Philadelphia, New York and London. W. B. Saunders & Co., 1904.

in its field. The profuse illustrations add to and render definite the lucid and succinct text and it may be commended as the latest and most accurate contribution to the field of diagnosis.

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THIS textbook of Dr. Penrose continues to appeal to a large audience in the profession. Its character as an authoritative statement presenting the best results of the author's extensive experience, its distinct and unencumbered text and its convenient size, render it serviceable both as a textbook for the student and a handbook of reference for the practitioner. This fifth edition has been thoroughly revised and completely brought down to date.

***A Text Book of Materia Medica.** Including Laboratory exercises in the Histologic and Chemic examinations of drugs. For Pharmaceutic and Medical Schools and for Home Study. By ROBERT A. HATCHER, Ph. G., M.D., and TORALD SOLLMANN, M.D., 12mo. 400 pages, illustrated. Philadelphia, New York, London. W. B. Saunders & Co., 1904.

†**Text Book of Diseases of Women.** By CHARLES B. PENROSE, M.D., Ph. D., formerly Professor of Gynecology in the University of Pennsylvania. *Fifth Edition, Thoroughly Revised.* Octavo 539 pages, with 221 illustrations. Philadelphia, New York, London. W. B. Saunders & Co., 1904.

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

FIRST AID IN NAVAL WARFARE.

By JOHN CROPPER WISE, M.D.,

MEDICAL DIRECTOR IN THE UNITED STATES NAVY.

IN the "*Archives de Médecine Navale*," a journal published by order of the French Minister of Marine, Dr. Fontan, Mèdecin, en Chef, gives us a detailed description of what he calls "*L'hôpital de combat*," as installed on the Russian ship "*Cesarwitch*," when completed at the Naval Arsenals on the Seine in June 1903.

It can be said of this hospital that it is probably the most complete, permanent location for the succor of the wounded, ever carried into action, ashore or afloat, and its installation on a ship of war, reflects the highest credit upon the humanity and progress of the Russian naval authorities.

It is a matter of regret that this occasion will not permit of an extended notice of Dr. Fontan's description—but we must be permitted a few words in this connection.

In comparing the conditions existing in the French naval service, with those of the Russian navy, Fontan thus expresses himself :

"The more that science exacts light, space, sterilized water, and other apparatus for the care of the wounded, more the constructors of our formidable armored engines treat as a negligible quantity that part of the programme, moral and humane, which is called the organization of the 'service de santé' during battle." He adds : "It may be that the surgeons will be prevented rendering themselves useful during the combat, but they should

prepare the means to be, and if a torpedo or shell destroy them without service rendered, they will have perished in doing their duty."

Alluding briefly to the forward hospital, it occupies the width of the ship, is provided with: 1. Ten beds, light, and without encumbrance. 2. Apartments for both shower, and closet. 3. Apartments for contagious diseases, cabin, two beds, (both closed), and disinfecting store. 4. Apartment "de visite" with bed and table for examinations and dressings—secretary, bureau, lavatory with hot and cold water, a steam sterilizer for instruments and linen. 5. Pharmacy opening on apartment "de visite" (or examination).

Every need has been considered; every detail practically and scientifically disposed of. The above described accommodations are for the sick. What Fontan calls the "battle hospital" is located aft, between two armored bridges or behind an armored partition—the floors and partitions are specially treated to prevent excess of temperature. Oil lamps are provided in case of accident to the electric lighting. The apartment is equipped with every modern appliance, necessary in major surgery. This splendid structure (the *Cesarwitch*) completed on the Seine in June 1903, was before the lapse of a year, to have a severe test of her fighting qualities, and the medical department was to be taxed to its utmost. Is it not a singular and sad truth that so little is reported in regard to the number and fate of the wounded? In these days we get no more details with telegraph and telephones lining every road, than we did, before these agencies were so utilized in war. Thus in regard to the great naval engagement following the sortie of the Russian fleet from Port Arthur August 10th last, we have had but meager account. The action was one where the usual obtained, and the results would be of great interest. The fighting lasted from early afternoon until darkness permitted the escape of the Russian squadron. The distance between the opposing forces varied between five and eight miles, and the killed and wounded on the *Cesarwitch* is placed at twenty-five per cent—large enough it is true, but not so large as has been predicted. One unusual feature in this action

was the distance of the opponents, the Japanese adopting these tactics to avoid ramming, and to this fact the comparatively small per cent in killed and wounded is due.

In the engagement off Tsu-Shima August 14th, the conditions were much the same as on that of August 10th. The action took place at long range and the percentage of casualties as reported by admiral Jessen of the cruiser Gromoboi is stated at twenty-five.

In the opinion of naval critics if fighting at long range, becomes established as a tactical principle, the emplacement of the great guns must be much higher than is the case at present, and what is of greater interest to the medical officer, we can believe that twenty-five per cent of casualties as shown in these engagements fairly represent the average, and is such that a well organized medical department should be able to render most important service. We shall await with interest a report from the *Cesarwitch*, so well prepared to care for her wounded—how they were handled in a ship provided with the “*gouttiere auffert*,” and a railroad running into the hospital—the nature of the wounds, the mortality of the medical department during action, and the services it was enabled to render.

With this passing notice of current events, let us proceed to the inquiry indicated in the title of this paper, “First Aid in Naval Warfare.”

If we consider the wide difference of opinion which exists among writers on this subject, the conclusion is inevitable, that we have not had sufficient experience, under modern conditions, to justify us in reaching ultimate conclusions.

It is not the purpose of the writer to consider the details of first-aid on ships of war, for they are much the same there, as any where else; it is the intention rather to discuss some major-propositions relating to this subject which to a very considerable degree are peculiar to Naval service.

Fortunately for a review of this matter, there have recently appeared articles relating to it, by officers of the English, French, and Spanish services, which are of great interest; among others we cite those of:—

DE FORGES (Medecin de 1er classe, de la Marine—*Archives de Medecine Navale*, November, 1903);

DON JUAN REDONDO (Primero-Medico de la Armada, *XII Congreso Internacional medicino, Madrid, 1903*. Reported in the *Journal of the Association of Military Surgeons*).

DR. PHILIP RANDALL (*Journal of the Royal United Service Institution*).

We are led to believe that these writers speak from their own experience and for themselves, which is the position of the author of this article.

The important questions at issue are these:

1st—The location of dressing stations.

2nd—The station and duties of medical officers during an engagement.

3rd—Emergency dressing.

Redondo, in regard to dressing stations, writes "The planning of places suitable for the wounded, has been unjustifiably disregarded. Had we not by actual experience been convinced of the absolute necessity of suitable dressing stations, we should doubt it, seeing the profound indifference with which the subject is disregarded, by Naval constructors and other officers." The essential conditions of a dressing station he states as follows:

1st. It should be such a point as might be called strategic, that the wounded may be brought to it, without much difficulty.

2nd. It should be protected from the enemy's fire.

3rd. It should have direct communication of its own, with the deck and batteries.

Two dressing stations are recommended, one forward and another aft, though this necessitates separation of the personnel and materiel. The dressing stations are considered the proper post for the medical officers during battle. This writer cites the analogy between land and naval battles; as the service in the army is described as that of front and rear; firing line, and base hospitals, so in ships there are analogous lines of surgical assistance, which ought to be systematized and perfected.

In regard to the first aid package, this officer contends, "it is unquestionably of great use in land battles, but it has compar-

atively little value in warfare at sea, owing to the severe nature of the injuries which the men do not possess the knowledge to dress." Speaking of his service on the "Isla de Cuba" which became the flagship of Admiral Montojo at Manila Bay, when the *Reina Christina* was placed "hors de combat," this writer continues, "I established a first aid station in the engine room, and another on the orlop-deck, and supplied both with an abundance of dressing material, arranged in such manner that I thought it could be easily used by any one without the slightest knowledge of surgery, and what was the result? In spite of the fact that in both places men received wounds, which fortunately were of such a nature as to be most easily dressed, they remained untouched, until they reached the sick-bay, and awaited their turn."

De Forges of the French Naval service, from the standpoint of the medical officer of the cruiser *Pascal*, thus expresses his views. "There are '*no postes de blesses*' properly speaking (on the *Pascal*), by lack of space under the protective deck, and also on account of the great difficulties of access. What then will become of the wounded during the combat? They will be laid aside by their comrades, in such manner, as not to interfere with the fire of the guns or of those serving them, this in my opinion is all that can in reality be done."

In regard to the station of the medical officers, this is the position held by De Forges with great emphasis. "The surgeon and his attendants remain in the protective deck during the fire." He should take no risk during battle, but conserve his entire force to meet the great demand that comes to it, after the action. With equal emphasis it is stated that relief should be attended to solely by the medical officers.

In marked contrast to the French and Spanish conclusion, is that of Dr. Randall, of the English Naval service, "In the fighting line only first aid should be rendered the wounded, and for this purpose dressing stations should be established where possible, and convenient."

"The medical officer and his assistants should be free to move about the ship, as expeditiously as they can, and wherever they are most urgently needed, as for instance, a casemate wrecked by a shell."

Medical officers in their professional zeal and humanity, are prone to forget, that a ship of war is primarily a fighting machine, an instrument of destruction, not of conservation; naturally we will ask every concession, regardless that if granted, it will distinctly detract from purely military efficiency.

Two of the authorities cited are of the opinion that dressing stations should be planned and provided for when the ship is laid down; they contend that they should be invulnerable, and easily accessible, usually more than one in number, having direct communication of their own with the deck and batteries.

It is stated without fear of successful contradiction, that were the construction authorities to concede all we ask in this respect, there would be no concensus of opinion as to what we wanted, and where we wanted it. To combine all the essentials stated, is a most difficult matter. Redondo, serving on the *Isla de Cuba* at Manila, tells us he established a dressing station in the engine-room—we presume because it was protected by the armored belt and the coal-bunkers, but how did this locality fulfill his other essential, viz., accessibility? The hatches and ladders, communicating between the decks, are of the utmost importance for combatant service—they will not be surrendered to the Medical Department, for hoisting or lowering, even were such a thing desirable. At Manila, we had stout boards, in convenient hatchways, which were set edgewise and were thus out of the way, and when needed were laid flat upon the ladders and upon it as a slide, the stretchers bearing the injured were sent below.

The commanding officer of the *Baltimore* when asked before the engagement above cited, where the stations were to be established, answered, "Locate where you think best; keep out of the way of the combatants as much as possible, and yet be as near them as you can;" that is the place difficult to find, a place out of the way, but accessible. And is not the question pertinent, "Why do we ask this concession of free communication for the wound stations, if the Medical Department is to remain quiescent therein when under fire and no systematic transportation of the wounded is contemplated?" After an action the wounded take precedence and get anything they ask for.

The French and Spanish authorities deem it of the highest importance that the medical officers remain under cover during an action. "It is impracticable for the medical officer to leave his post, come on deck and go to whatever points men happen to be wounded." "*Le medecin, et ses infirmiers, se tiennent sous le pont cuirassé pendant le tir.*" The authorities (French and Spanish) who use these arguments contend, that the lives of the sanitary service are too valuable to risk under fire, in view of the immense responsibility devolving upon it after an engagement.

We are assured there are no medical officers of the American Navy who will be attracted or actuated by this sentiment—but rather believe, that all war is a risk and we must take our part in it. While proper prudence is incumbent on all officers, to put a Medical Department in a bomb-proof, while those it is intended to succor, lie in distress and unaided, is to deny the very object of its existence. And furthermore, what will be the effect on the morale? The writer in this connection is led to recall the contrast under which the two armies fought in the last Russo-Turkish campaign. The former had a well equipped sanitary service, which gathered the wounded, and gave them every care—the brave Turks on the other hand fell, knowing there was no surgeon or comrade to care for them, but that all depended on "Kismet" and the Prophet. This factor tended greatly to diminish the efficiency of the Turkish troops. Let those who advocate this immuring of the Medical Department in Naval warfare, remember the analogy cited between the Army and Navy, that we also have our firing line and base; is it conceded that the Medical Department of the Army will not be on the firing line? It is admitted that such views have recently been advanced by able medical officers, but the settlement of the question will be in accord with the sentiment of Senn, "When a soldier is struck down by a bullet, in the discharge of his duty, he is no longer a combatant, and has a claim upon humanity, which no nation can ignore." It is true also, that engagements between vessels acting singly will be the exception, and general engagements, the rule of the future, so that if the Medical Department suffers such losses as it did in the Spanish fleet at Manila (the Surgeon of the

flag-ship was wounded and the Assistant Surgeon killed), the injured will not need medical attention, a longer time, than one would expect in a scene of such demoralization, defeat and disaster.

Concerning the rendering of first aid to the injured in war, we are all aware that point has been recently discussed, pro and con; there is a formidable array of names against such procedure, among which we find those of Longmore and von Bergmann. While there can be little doubt that transportation beyond the firing line, must be the main objective with Military Surgeons, the instruction of the soldier, and sailor in first aid, and the resort to temporary, and emergent measures by the medical officer at the front, cannot cease to be recognized as a procedure well established in Military Surgery. Can we doubt this after reading Makins' experience in South Africa? It is contended that this principle applies with equal force to the wounded in Naval warfare.

Redondo is of the opinion that injuries in Naval warfare will be too grave and beyond the knowledge of the non-professional to heal; yet we are told in the same article, that those who applied at his dressing stations, in the action at Manila were of a "character to be easily dressed." It cannot be established that the gravely wounded in Naval warfare will be in such great excess as stated; we are well aware that splinters play a more important part than any other missile, in cases where men are hit by fragments of large projectiles, lacerations, and dismemberment, are so common that death is immediate.

At Manila a shell from the enemy struck a box of secondary ammunition on the main-deck of the *Baltimore*, causing it to explode, whereby nine men of the gun's crew were wounded, the most serious injury being a fracture of the tibia. Again when we consider the many contingencies of Naval warfare, expeditionary, and boat duty, large parties, separated from the ship, without a medical officer, can we think that those men should be ignorant of first aid? In the modern ship, however alert and active the medical officer may be, there are so many points that cannot be reached, should the wounded in such situation be

without the knowledge and means of aiding themselves—such for instance as the tops?

We must give our absolute preference to the views of the English writer on this subject. We cannot believe it a wise plan to insist that dressing stations, be built in ships under construction at arsenals, to prove themselves subject to some unseen but insuperable objection, when at sea or in action.

We believe the wounded in any sustained Naval action will be so great, that the whole number cannot expect the services of the Medical Department, but must be able to help themselves.

While officers of the Medical Department, in common with all others, will use proper care, it is not believed that the conditions of modern Naval warfare require, nor will the demands of humanity justify, their seclusion or inactivity during battle.

DISCUSSION.

THE CHAIRMAN, COLONEL G. STERLING RYERSON:—As this is an international question I should be very glad to hear the discussion participated in by foreign representatives.

DON JUAN REDONDO Y GODINO, Spanish Navy: Unfortunately I have not the command of language to make myself understood in the discussion of this very valuable paper, but I wish to thank Medical Director Wise for introducing me to the Association, and also for his very valuable contribution to the subject under consideration and which merits our earnest consideration. [Applause.]

SURGEON CHARLES FRANCIS STOKES, U.S.N.:—I have taken the stand for some time that in operations on shore the first aid must be rendered by a comrade, a nearby comrade. Wounds sustained in over ninety per cent. of cases on shore are inflicted by small bullets. They get well pretty generally under any intelligent plan of treatment. On the other hand, wounds encountered on board ship are wounds caused by shell fragments or splinters. They are generally extensive, jagged, contused wounds. They must be attended to *at once* or the chance for infection is unlimited. I have devised a first aid shell wound packet which can, in my opinion, be as easily applied by the men as the army first aid packet, and certainly such cases are more urgent than surgical cases in the field. As I have said before, I think the first aid should be administered by a comrade.

COLONEL HOFF: Is there any provision made for carrying this first aid packet by the sailorman?

SURGEON STOKES: My plan has been to make these packets on board ship, sterilize them there and have them hung up conveniently out of the way, but to have them accessible. For instance in a turret a man cannot be reached until the action is over, and in that case the packets would be hung up where they could be gotten at by the men instructed in their use.

THE PRINCIPLES OF THE NEW AUSTRO-HUNGARIAN SANITARY REGULATIONS FOR WAR.

By DR. JOHANN STEINER,

STAFF SURGEON IN THE AUSTRO-HUNGARIAN ARMY.



An Austro Hungarian Sanitary Soldier.

years work, succeeded in drawing up a set of modern regulations

THE Austro-Hungarian regulations for sanitary service in war which have been in force hitherto date from the year 1879. Such important changes have been introduced in weapons of war, methods of warfare and medical science, that the directions laid down in the above regulations must be regarded as obsolete and in many cases utterly impracticable.

A number of medical officers* and officers of the General Staff, detailed for the purpose by the War Office, have now, after almost six

*Including the writer of this paper.

corresponding to the requirements of the military conditions of today.

It may, however, be mentioned that the new regulations are by no means ideal from the military surgeon's point of view. It has often been necessary to yield to irresistible claims of a military nature. Also in many cases, the finances at disposal only allowed of improvements, where a complete reorganization would have been advisable.

The result has been a compromise with all the faults inevitably attaching thereto. Still, the Austro-Hungarian army now possesses an excellent guide, in accordance with which sanitary service in the field can be properly developed. As this fact is doubtless of great interest to the medical officers of foreign armies, the main principles of the new Regulations may be summarized below.

In time of war the following persons are at the disposal of the sanitary service *with the troops*: military surgeons, sanitary attendants (*Sanitätsgehilfen*), orderlies (*Bandagenträger*), and stretcher-bearers (*Blessiertenträger*).

There are further a number of special *Mobile Sanitary Establishments* including Divisional and Brigade Sanitary Establishments (*Divisions und Brigadesanitätsanstalten*), Field Hospitals, Mobile Reserve Hospitals, Field Convalescent Houses (*Feldmarodenhäuser*), Hospital Trains, Hospital Ships, etc., in which medical officers, pharmacists, pay officers, a special hospital corps (*Sanitätstruppe*) and transport soldiers serve.

The Medical Supply Field Depots, (*Sanitätsfelddepôts* under the orders of chief staff surgeons, see that used-up sanitary stores are replaced.

In connection with the mobile sanitary establishments there are *Stationary Sanitary Establishments* on the field of operations and at the base.

The *Voluntary Aid in War* consists partly of institutions attached to those appointed by the State, *e. g.*, the "Field Sanitary Columns of the Teutonic Order" (*Deutsch-Ordens Feldsanitätskolonnen*) attached to the Divisional Sanitary Establishments, and the Transport Columns of the Red Cross (*Blessiertentrans-*

portkolonnen des Roten Kreuzes) attached to the Field Hospitals. There are also separate establishments of the Red Cross, such as Field Hospitals, Hospital Trains, Stationary Hospitals, Convalescent Houses, etc.

Full details of the Red Cross work are, however, not contained in these Regulations, but in a special appendix (*Anhang*), which is shortly to be revised.

Information respecting the sick, wounded and missing is collected by the Common Central Intelligence Office (*Gemeinsames Zentralnachweishureau* in Vienna, as also by an Information Bureau (*Auskunftsbureau*) in Vienna and another in Buda Pesth.

Civil medical men of distinction, especially surgeons and hygienists, may be attached as consulting surgeons to an army in the field. Their functions are exclusively of a medical and scientific character, and they exercise no influence upon the service.

The *direction* of the sanitary service is in the hands of the chief medical officers, under the direction of their military commanders. Accordingly, the direction is vested in the chief surgeons of the divisions and single brigades, the army corps and armies; further in the chief medical officers (*Sanitätschefs*) belonging to the Army General Commands, and to the General Command of the Lines of Communication.*

These directing surgeons are responsible for the performance of the sanitary service, and are obliged to make proper sanitary arrangements even without having received express orders to do so. Great importance attaches to the new regulation that during an engagement, when the attention of the military commander is almost exclusively occupied with the disposal of the troops, the surgeons are to proceed on their own authority to make all necessary sanitary formations.

*REMARK: In the field, the Austro-Hungarian troops are divided into armies with an Army Command at their head, and the Army General Command for service on the lines of communication. Each army is divided into corps, each corps into divisions. Above the Army Command stands the Chief Army Command, to which the General Command of the Lines of Communication is added for the management of the service on the lines of communication.

According to the new regulations the First Aid Stations (*Hilfsplatz*) are established exclusively by the sanitary staff of the troops in convenient positions. To supplement the store of sanitary material with which the troops are furnished, viz., the contents of the surgeons', sanitary attendants' and stretcher-bearers' pouches, as well as the orderlies' knapsacks, a special service of sanitary supply wagons (*Hilfsplatzwagen*) filled with stores, has been organized. These wagons actually belong to the Divisional and Brigade Sanitary Establishments, but are allotted to the troops before and during engagements. A Divisional Sanitary Establishment has nine, a Brigade Sanitary Establishment two such wagons.

From a medical point of view it would have been advisable to give over these wagons entirely to the troops. But, regarded from a military standpoint it was found impracticable to attach such a large number of wagons to the troops permanently.

During an engagement, the regimental sanitary staff, directed by the military surgeons, follows the detachments as far as possible, and gives assistance to the wounded on the spot. As soon as the engagement has acquired a certain degree of stability, first aid stations are erected as near to the engaging troops as is consistent with safety.

Stretcher-bearers, conducted by the surgeons and sanitary attendants, are sent out from the first aid stations to fetch in the wounded, so far as the enemy's action allows. Full advantage must be taken of all natural shelter afforded by the locality as well as of pauses in the engagement.

At the First Aid Station the work of the surgeons falls into three groups. At the Receiving Group (*Übernahmungsgruppe*), the wounded are examined, and then, according to their condition, they are assigned either to the group for slightly wounded (*Leichtverwundetengruppe*), or to the group for severely wounded (*Schwerverwundetengruppe*). After treatment, the slightly wounded who are able to march are sent to the station for slightly wounded (*Leichtverwundetestation*) of the Divisional Sanitary Establishment. The severely wounded are conveyed in ambulance wagons from the first aid station to the

dressing station (*Verbandplatz*) of the Divisional Sanitary Establishment.

To each Infantry Division there is attached an Infantry Divisional Sanitary Establishment, under the orders of a staff surgeon, and consisting of the following departments:

1. The Sanitary Supply Wagon Column (*Hilfsplatzwagenstaffel*). As already mentioned, the wagons are assigned to the troops for the first aid stations during an engagement.

2. The Station for Slightly Wounded (*Leichtverwundetenstation*), where the slightly wounded are collected after treatment and taken care of. Thus the dressing station is relieved of this disturbing element.

3. The Dressing Station (*Verbandplatz*) for treating the severely wounded.

4. The Ambulance Station (*Ambulanz*) where the severely wounded treated at the dressing station are received and taken care of. For this reason the dressing and ambulance stations must always be situated close together.

5. The Ambulance wagon column (*Blessiertenwagenstaffel*). These wagons serve for the removal of the severely wounded from the first aid stations to the dressing station.

6. The Sanitary Supply Reserve (*Sanitätsmaterialreserve*) containing stores, to replace those used by the troops and by the establishment itself.

Each Infantry Divisional Sanitary Establishment has also attached to it a Field Sanitary Column of the Teutonic order (*Deutsch-Ordens Feldsanitätskolonne*), consisting of four ambulance wagons and one sanitary supply wagon, which can be used when necessary.

The Station for Slightly Wounded, the Dressing Station, the Ambulance Station and the Sanitary Supply Reserve are exactly divisible into two halves. Each of these halves is comprehensively styled a "section" of the establishment. The establishment thereby acquires great flexibility and elasticity.

The central point of the sanitary service during an action is the Dressing Station. It is divided into a Receiving Group and a Surgical Group, to which the Ambulance Station may be added as

a third group, affording a temporary hospital for the severely wounded after they have been operated on and dressed.

The Divisional Sanitary Establishment of a Cavalry Division is materially simpler. It consists merely of an Ambulance Wagon Column and a Dressing Station.

The Infantry Divisional Sanitary Establishment with a mountain equipment is adapted to the circumstances of warfare in mountainous districts by a still greater degree of divisibility. The Dressing Station and the Sanitary Supply Reserve are each divisible into four parts, the Ambulance Station into two. There is no special station for the slightly wounded. The ambulance wagons follow as far as the roads allow. All the stores of the establishment are laden on pack mules.

A Brigade Sanitary Establishment is assigned to each single Infantry Brigade. It consists of a Sanitary Supply Wagon Column, a Dressing Station, an Ambulance Station, an Ambulance Wagon Column and a Sanitary Supply Reserve. The equipment of this establishment roughly corresponds to half that of an Infantry Divisional Sanitary Establishment.

The wounded are conveyed from the Divisional Sanitary Establishments to the Field Hospitals, where they receive the first regular hospital treatment and nursing. For military reasons—in order not to increase the number of units—the field hospitals for 600 sick or wounded have been retained. But each field hospital is divisible into three sections (for 200 patients), each of which can be employed independently. The administrative service is also arranged in sections, even in the case of the combined Field Hospital, so that a Field Hospital really consists of a group of three small Field Hospitals. A Transport Column of the Red Cross, divisible into three sections, is attached to each Field Hospital for the conveyance of the wounded. In mountain warfare single sections of the Field Hospital are provided with pack mules, and are further divisible into two half sections.

A number of field hospitals are assigned to each Army Corps, and are to be got in readiness before battles and engagements, so that whenever possible some of them can be set up in position the day of the action. The remainder form a reserve of the Army Command.

The Divisional (Brigade) Sanitary Establishments and the Field Hospitals serve merely for the temporary reception of the sick and wounded, and must be cleared ready for new patients as quickly as possible. Accommodation of a more or less permanent character is afforded by other establishments situated in the rear of the troops. These are the Mobile Reserve Hospitals (*mobile reservenspitäler*) for those seriously ill (severely wounded), the Field convalescent Houses (*Feldmarodenhäuser*) for the slightly wounded and convalescent. Also the Mobile Halting Stations for the Sick (*mobile Krankenhaltstationen*), which provide temporary accommodation for the night to the sick and wounded who are being sent back to the base.

As a rule, these institutions are only formed during a campaign as occasion offers. They draw their staff from the reserve staff of the Army General Command, and their supplies from the Medical Supply Depot.

A Mobile Reserve Hospital is organized similarly to a Field Hospital. Thus it consists of three sections, each accommodating 200 patients. Each section can be used independently. A Field Convalescent House is generally capable of taking 500 slightly wounded. A Mobile Halting Station for the sick is equipped to supply 200 patients with provisions and accommodation for the night.

In each Army, it is the duty of the Army General Command to employ these hospitals according to the directions of the Army Command, two Mobile Reserve Hospitals, three Field Convalescent Houses and two Mobile Halting Stations for the sick are reckoned for each Army Corps.

When there is a likelihood of serious encounters with the enemy, it is the duty of the Army General Command to see that the hospitals are got ready and so disposed that they reach the spot where they are required at the proper time.

These hospitals are, however, also employed for ambulance purposes in the deployment zone and on the lines of communication.

When the number of the Mobile Halting Stations for the sick is found inadequate, Provisional Halting Stations for the sick

(*improvisierte Krankenhaltstationen*) can also be established.

If there are cases of infectious disease among the troops, special Hospitals for Infectious Disease (*Epidemiespitäler*) must be established, each accommodating 200 patients.

Permanent Hospital Trains (*Eisenbahn-sanitätszüge*) and Permanent Hospital Ships (*Schiffsambulanzen*) supplemented by Provisional Hospital Trains (*Krankenzüge*) and Provisional Hospital Ships (*Krankenschiffe*) are used to convey the sick long distances. The Permanent Trains and Ships, are intended for the severely wounded, who require hospital treatment during the journey. A Permanent Hospital Train accommodates 144 patients, a Permanent Hospital Ship 116-132. The remainder of the sick are conveyed in the Provisional Hospital Trains and Ships, some in a recumbent, others in a sitting position. A Provisional Hospital Train may only under exceptional circumstances be used to convey more than 400 sick or wounded.

To promote hygienic investigations in the district where the troops are operating, a newly appointed Sanitary Commission (*Salubritätskommission*) is attached to each Army General Command. It consists of two military surgeons and one military pharmacist, who must be specialists in hygiene, bacteriology or chemistry. If need arises, this commission is augmented by the required number of doctors, chemists, officers and men drawn from the troops who have had a technical training.

The new Regulations attach special importance to the directions respecting the sanitary arrangements in the deployment zone (*Aufmarschraum*), returning the sick to the rear (*Krankenabschub*) and the dispersion of the sick (*Krankenzerstreuung*).

As already mentioned, the deployment zone of an army is equipped with Mobile Reserve Hospitals, Field Convalescent Houses and Halting Stations for the Sick. In order to make all sanitary arrangements before the arrival of the troops, *i. e.*, to introduce precautionary measures against infectious disease, the Chief Surgeon of each Army Corps (*Körpschefarzt*) is sent in advance to the deployment zone. If necessary, Local Sanitary Commissions (*Locale Salubritätskommissionen*) are appointed on the spot to investigate and remove anything that is objectionable from a sanitary point of view.

As it would be unadvisable for military and sanitary reasons to allow a large number of sick and wounded to remain in the neighborhood of the army, a continual stream of disabled men must be kept passing to the rear. The distance to which they are sent varies with the degree of disability, some being only despatched to the etape zone (*Etappenraum*) others to the base. Accordingly, there is a distinction between returning the sick to the rear (*Krankenabschub*) *i. e.* sending them back from the mobile army to the hospitals in the etape zone, and dispersing the sick (*Krankenzerstreuung*) *i. e.* distributing the sick at the base.

The returning (*Krankenabschub*) of the sick is regulated by the Army Command, the dispersion (*Krankenzerstreuung*) by the War Office. The main principle to be observed respecting the returning of the sick is that all the sick and wounded whose condition affords hope that they will be able to resume their service are not to be sent beyond the boundary between the etape zone and the base zone. The very slightly wounded, who will be able to serve again in a short time are not to leave the field of operations at all.

In order to comply with these principles, it is necessary that the sick and wounded shall be thoroughly inspected at frequent intervals. This inspection must take place at the Field and Mobile Reserve Hospitals from which the sick are despatched, at the Returning Stations (*Krankenabschubstationen*) and the dispersing stations (*Krankenzerstreuungstationen*).

Returning Stations are established by the Army Commands near the border between the field of operations and the etape zone, chiefly in those places where the railway ceases. Thus the removal of the sick from the carriages to the trains (or ships) also takes place at this point. Each returning station is equipped with one Mobile Reserve Hospital, one Field Convalescent House and one Mobile Halting Station. The Mobile Reserve Hospital is intended for the severely wounded, whose condition does not allow of their being conveyed any further. The slightly wounded, whose rapid recovery is expected, are taken to the Field Convalescent House. The Halting Station affords temporary accommodation to those who are merely passing through.

The Regulations also contain special directions for those cases in which, after an engagement involving heavy losses, a wholesale removal of the wounded from the numerous Field Hospitals must take place. Removals on such a large scale from the field of battle are generally directed by the chief medical officer of the Army General Command, assisted by an officer of the General Staff, railway officials and others.

To secure uniformity in the removal of the sick, the various sanitary establishments are divided into groups with an army surgeon of high rank at the head of each as director of the group (*Gruppenleiter*). Wagons and attendants for the removal of the sick are attached to each group.

The directors of the groups report daily to the chief medical officer the number and class of the sick in each establishment who will be ready for removal on the following day. The chief medical officer, after taking all the circumstances into consideration, decides when and how many patients are to be sent from the groups to the Returning Station. The sick who are to be removed to the base are taken by rail or ship from the Returning Station (*Abschubstation*) to the Dispersing Station (*Zerstreuungstation*). At least one Mobile Reserve Hospital, one Field Convalescent Hospital and one Halting Station are established in the Dispersing Station for the same purposes as in the Returning Station. Here the sick who are permanently disabled, or whose recovery will be slow are allotted to the various hospitals throughout the country, according to directions received from the War Office. On this account the district commands are required to send information periodically to the War Office respecting the available capacity of the permanent hospitals.

At home the sanitary service is, generally speaking, carried out in accordance with the provisions for time of peace.

From this short summary it can be seen how comprehensive sanitary service in war is, and what a formidable task the execution and direction of this service lays upon the military surgeons.

The Regulations which I have sketched show a material advance in point of service. But they are also permeated by a spirit of humanity, which finds its expression in the words which form the heading of the book: "The Regulations cannot provide for every possible contingency in war. When any doubt arises the

welfare of the sick and wounded,—so far as is compatible with military requirements—is to be thought of in the first place. No considerations of an economic nature or reluctance to assume responsibility must be allowed to interfere with it."

If carried out in this spirit the new Regulations will, in the event of a great war, fulfill their noble ends, and benefit not only the sick and wounded, but also the whole army and our Country.

RUPTURE OF THE RECTUS ABDOMINALIS IN CAVALRYMEN.

IN the "Archives de médecine et de pharmacie militaires" August, 1904, and September, 1904, M. LÉNEZ states that rupture of the rectus muscle of the abdomen has attracted little attention heretofore, and deserves some study. It occurs almost exclusively in recruits, under the following conditions: A cavalryman is mounting without the aid of his stirrups; while springing to the saddle he experiences a sharp pain in the hypogastric region, resembling a knife stab; he cannot repeat the attempt, nor can he move even; respiration is suspended for an instant, or is entirely costal; he is doubled up, his face is pale, he has a sensation of tearing and weakness in the lower abdomen, and the pain is referred to the corresponding lower extremity or to the lumbar region. General symptoms ordinarily absent, though nausea, vomiting and colic have been observed. The physical signs are those of a deep seated tumor, broad as the hand, transversely elongated, moves with the muscle; its volume is constant, irreducible. It must be differentiated from abscess, hernia, appendicitis, strangulated and omental hernia. The seat of the rupture is usually on the right side, 2, 3, or 4 cm. above the pubes, and is total in only 12 per cent. of cases. The prognosis is good; heals readily, and function restored in from three to seventeen days, average eight. The treatment consists in putting the patient at rest, not necessarily in bed; sedative fomentations and wide binder; fly blisters will hasten the absorption of the hematoma, On the first sign of strangulation, open up the abdomen. Electricity has given good results, a weak current followed by stronger ones, gradually increased in intensity.—S. M. DELOFFRE, U.S.A.

GYMNASTICS AND ATHLETICS, WITH SPECIAL REFERENCE TO FOOTBALL.

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THE necessity of bodily exercise, especially for growing young men, is admitted; the question at issue is chiefly the amount needed and the best forms in which it should be taken.

A few general remarks on the physiology of exercise may clear the way and lead to a better comprehension of the subject.

We know that our nervous energy and consequent capacity for mental and physical work depend upon active cell metabolism, that is, constant and rapid renovation of tissues. The most vital factor in this work of nutrition, assimilation, dissimulation and elimination, whereby heat and energy are evolved, is oxygen. Unless the blood be thoroughly oxygenated, all functions suffer. An abundant supply of oxygen to the tissues is the great end of exercise.

When voluntary muscles are set in motion, they require more blood, especially more oxygen. If this motion be active and continued, or becomes, violent, the need of oxygen is so much greater that the heart is stimulated to quicken action in order to furnish a more rapid flow of blood to the contracting fibres; hence the increased frequency of pulse in exercise. But since the blood obtains its oxygen from the lungs, it follows that, simultaneously with increased pulse, there must be increased respiration, increased first in depth and then also in frequency. Heart and lungs, then, are functionally, as well as structurally, very intimately connected, and any stimulation or disturbance of the one is necessarily felt by the other.

At the beginning of active exercise more venous blood is returned to the heart; the right ventricle labors to empty this increased amount into the resistant lungs. There is, in this first stage, a rise of blood pressure, indicated by the labored heart-beats and more or less breathlessness. But soon the resistance lessens; the lungs expand, the peripheral vessels dilate and the blood pressure falls; the heart pulls itself together and the so-called "second wind" is established.

The greater the amount of oxygen absorbed, the greater is the amount of carbonic acid produced, the greater is its accumulation in the blood and the more rapid its exhalation from the lungs. At first, the greater respiratory energy, the deeper and quicker breath, will cause an adequate elimination of this obnoxious gas but as the exercise continues or increases in violence the equilibrium is destroyed between its production and the eliminating power of the lungs; it accumulates in the system and respiratory distress occurs. This accumulation is doubtless the chief cause of the dyspnoea or breathlessness of violent exercise, a much more important factor in its production than cardiac disturbance; thus, when, from strenuous muscular effort, the pulse and respiration have doubled in frequency, it will be noticed that, after a rest of a few minutes, when the dyspnoea is all over and respiration has returned to its ordinary rhythm, the pulse rate continues much above the normal; whence we may conclude that, since the heart does not recover its normal action until long after the disappearance of dyspnoea, it cannot be the main agent in its production.

The gentle or moderate exercise of a few muscles, for instance those of the upper extremity, may not produce any appreciable fatigue, or, if prolonged, may produce only local fatigue without respiratory difficulty, but in all violent muscular effort there is always a corresponding disturbance of heart and lungs, a disturbance which is in direct ratio to the sum total of work done, and therefore not necessarily proportional to the degree of fatigue felt; thus, as mentioned above, a man may be tired with hardly any increase of pulse or breathing, while, on the other hand, he may run up-stairs and get out of breath without muscular fatigue.

It is readily understood that, whenever the heart is spurred on to more vigorous effort, not only the working muscles are benefitted but, through the greater velocity of the more highly oxygenated blood, all the organs and tissues of the body receive an increased share of oxygen and other nutritive principles; therefore the man who walks not only exercises his lower extremities but his brain and liver as well.

The brain which thinks is analogous to the muscle that contracts; more blood flows through it, producing more active combustion, greater heat and increased dissimilation. Thinking, then, is exercise for the brain, but an incomplete one, for the waste products accumulate faster than they are eliminated and a clogging of the mental machinery is liable to occur. In order to get rid of them and increase the supply of nutritive principles, we need a quicker blood current, that is to say, the increased action of the heart and lungs produced by muscular exercise. Hence, it follows that gymnastics and athletics are necessary for the brain. It follows also that when, from violent or continued physical work, the system becomes saturated with carbonic acid and other waste products, and fatigue more or less intense results, the brain is affected as much as the muscles and unable to functionate properly. It is a great mistake to imagine that the brain does not share the fatigue of the body and that a physically exhausted man can think as clearly and successfully as when in a state of rest.

Exercises have been divided into exercises of strength, exercises of speed and exercises of endurance. We might add a fourth category, namely, exercises of skill. In all games and sports the characteristics of these several classes of exercises are more or less combined.

Exercises of strength, such as wrestling, lifting weights, tug of war, etc., demand the simultaneous, sustained action and whole force of many muscles. In order that these muscles may take a very firm attachment, it is necessary that the chest be filled with air and all the bones of the trunk strongly fixed, with glottis closed. This fixation of the trunk requires will-power, a special effort. Exercises of strength cause an abundant and con-

tinuous flow of blood into the muscles and produce all the conditions necessary for energetic tissue repair. They need very little work of coordination, or repetition of movement, occasion but little nervous disturbance and do not demand great brain work; in other words, "they increase energetically, and even violently; the working of all the organs of the body, while leaving in relative repose the nerve centres and psychical faculties."*

Exercises of speed are those which require frequent repetition of movement; the muscles are not called on to act with their utmost energy, but to contract and relax a great many times and at very short intervals, the result being the same amount of mechanical work performed and the same increased activity of the respiratory and cardiac functions as in exercises of strength; but they do so with less muscular fatigue and less disturbance of lungs and heart. On the other hand, experiment shows that muscles subjected to small, frequently repeated contractions, receive less blood than during one long-sustained contraction. Therefore the nutrition and development of muscles is much less marked in exercises of speed than in exercises of strength; it is noted that professional runners have trim legs and comparatively small calves. Furthermore, Lagrange also calls attention to the excessive expenditure of nervous energy and certain phenomena of exhaustion produced by exercises of speed, out of proportion to the quantity of mechanical work performed: a state of nervous excitability which prevents repose and sleep, defective nutrition and repair, and, sometimes, great loss of weight.

Exercises of endurance are those in which the muscular effort is moderate and the movements not too rapid, but in which the work is continued for a long time. The duration is subordinate to the power of the lungs and heart, and the intensity of the nervous energy which actuates them. Walking is the type of exercises of endurance, but when performed up a steep slope may become an exercise of strength. Rowing over a short course is mostly a work of speed, but, in a long race, becomes a work of endurance. In these exercises all the functions are stimulated but in a milder way and without danger of violence to any organ.

*Physiology of Bodily Exercise. Lagrange.

A serious objection is that they do not excite the respiratory movements with sufficient strength to expand the air-cells and increase the capacity of the chest. They are also rather tedious and irksome from the monotony of the same movements long continued. For these reasons they are best adapted to the physically weak or defective as well as to persons of ripe age.

In exercises of skill, the psychical faculties are more severely taxed than in any other kind; they require speed, repetition and accuracy of movement, and special training of certain sets of muscles. Their effects are mainly those of exercises of speed, but as movements of rest are more frequent and the strain is less continuous, they seldom give rise to the utter prostration which occurs, for instance, in running and rowing races.

Football is a compound exercise, partly of strength, endurance, speed and skill; hence its superiority.

GYMNASTICS AND PHYSICAL TRAINING.

The exercises of the gymnasium are susceptible of great variation and therein lies one of their chief advantages. It is possible so to order and combine them as to contract, to any desired degree, every muscle, tendon and ligament, thus securing suppleness of joints as well as development of tissues, for it must be borne in mind that agility is as desirable as strength. Simple callisthenics, without apparatus, can be made exceedingly useful and should never be overlooked. An objectionable tendency in the gymnasium is to give a preponderant share to the exercises of the upper extremities. The arms are vigorously trained as in suspending or supporting the body, and often made to usurp the office of the legs; they soon become greatly developed, often out of proportion to the rest of the body this development, in professional gymnasts, often amounting to deformity, such as protuberant shoulder-blades and round back. The legs, served by powerful muscular masses, are capable of much work with little fatigue. A man who runs quickly upstairs, or up a steep slope, performs a sum of work which far exceeds any muscular effort he is able to do in any other way during the same time.

The vital importance of chest development need not be dwelt upon; upon the size and shape of the chest depend, to

a great extent, the capacity and vigor of lungs and heart. The best way to increase the expansion of the chest is to strengthen the so-called respiratory muscles, those concerned in elevating the ribs and sternum and depressing the diaphragm. It is an error to believe that this purpose is best attained by exercising the upper extremities; experience shows that it is best attained by the exercise which compels the deepest inspiration and insures the most complete inflation of all the pulmonary vesicles; we must therefore seek to increase the amplitude and frequency of the respiratory movements. These movements depend upon the intensity of the respiratory need, while the intensity of this need depends on the quantity of mechanical work performed in a given time. The sum of work performed by a muscular group is according to the strength of this group; the legs possessing three times as much muscle as the arms can perform three times the amount of work before being exhausted. Therefore, it is chiefly by the use of the legs, as in running, or ascending slopes, that the chest is to be developed.

Another advantage of gymnastic exercises is that they are easily watched, regulated and controlled, consequently free from injury or accident. Thus it is a very remarkable record that during the twelve years the present West Point gymnasium has been in operation not a single serious injury has occurred, neither fracture nor dislocation. Furthermore, gymnastics can be carefully graded and adapted to individual wants so that overtraining is impossible. There is no question, then, that they can be made to answer fully and successfully all the physical needs of a growing youth. They are performed at the word of command, requiring attention and prompt obedience; this, however, is not an unmixed advantage, for exercises under coercion are not always performed with alacrity and thoroughness; they are more like work than play, may become irksome and often fail to bring out will-power and nervous energy. This is why athletic games, with their greater freedom, variety and excitement, will always be a pleasant, useful and necessary addition to mere gymnastics.

We shall now consider some of the effects, upon cadets, of the physical training carried out at the West Point Military

Academy during the four years of their course, this training including gymnastics, callisthenics, fencing, swimming, foot and mounted drill, and athletic games.

The age of admission to the Academy ranges from 17 to 22, the average being about 19.26; for those cadets who become football players, the average is about 19.65, or five months older. The average age of the West Point eleven at the close of the football season of 1903 was 22 years and 5 months.

The following table, kindly prepared for this paper by Lieutenant Koehler, instructor in physical training, is interesting and instructive. It is based on the data obtained from the four classes graduated in 1900, 1901, 1903 and 1904, comparing the total number of men in those classes (346) with the number of football players among them (40).

AVERAGES FOR TOTAL NUMBER.

Height.	Weight.	CHEST.	
		Norm'l Expiration.	Inspiration.
Entrance.....67.85 in.	141.16 lbs.	33.72 inches	35.90 inches
Graduation.....68.82 in.	146.78 "	35.48 "	37.78 "
Increase......97 in.	5.62 "	1.76 "	1.88 "

AVERAGES FOR FOOTBALL PLAYERS.

Entrance.....68.77 in.	155.90 "	35.42 "	37.50 "
Graduation.....69.36 in.	160.26 "	36.64 "	39.09 "
Increase......59 in.	4.36 "	1.22 "	1.59 "

COMPARISON OF INCREASES.

Total No......97 in.	5.62 "	1.70 "	1.88 "
Players......59 in.	4.36 "	1.22 "	1.59 "
In favor of Total No.... .38 in.	1.26 "	.54 "	.29 "

COMPARISON OF AVERAGES.

Entrance.....			
Players .....68.77 in.	155.90 "	35.42 "	37.50 "
Total No.....67.85 in.	141.16 "	33.72 "	35.90 "
In favor of players......92 in.	14.74 "	1.70 "	1.60 "
Graduation....			
Players .....69.36 in.	160.26 "	36.64 "	39.09 "
Total No.....68.82 in.	146.78 "	35.48 "	37.78 "
In favor of Players......54 in.	13.48 "	1.16 "	1.31 "

Very striking in this table is the physical superiority of the man selected for the football team, being, at entrance, nearly an inch taller and weighing 14 or 15 lbs. more than the average man in his class, with correspondingly larger chest. Indeed, it is the best developed men, that is those least in need of exercise, who are selected, clearly showing that the end in view is not physical culture but results in encounters with competitive institutions.

It has been observed that most players at the Academy lose two or three pounds between the close of the season in the fall and the time of graduation in the following summer, so that they would probably have that much added to their gain did we take their weight in November, when at their best training stage, instead of the following June. This loss of a few pounds is readily explained by the reduced assimilation naturally resulting from decreased bodily activity and increased mental preoccupation.

It is also noticed (in comparison of increases) that the gain of the average cadet, in height, weight and chest, is noticeably greater than that of the football player during the four years which elapse between entrance and graduation. This is perhaps what should be normally expected, for players being nearer their maximum development at time of entrance, their further growth would be less rapid, although maintaining their superiority to the end; yet it is somewhat of a surprise; seemingly indicating that football, as played at the Academy, has no marked effect upon weight increase.

Surgeon Henry G. Beyer, U.S. Navy, gives an interesting account of the effects of football training at the Naval Academy and other institutions.* At the Naval Academy, the increase in weight, during the two months of training, was 7.90 lbs. in 1892 and 7.20 in 1893, while the increase of lung capacity was 11 cubic inches (from 277 to 288). Furthermore, this increase in weight was to a large extent permanent, the loss, six months afterwards, being only from 1 to 2 lbs. The averages of the teams, for 1892 and 1893, were: age 19.11, height 69.20 inches, and weight 161 lbs. Dr. Beyer gives the averages of the teams of six leading colleges (including Naval Academy) for 1892, as follows: age

*Football and the physique of its devotees, from the point of view of physical training. *Am. Journ. Med. Sc.*, Sept. 1894.

20.90, height 69.80, weight 168 lbs., lung capacity 278 cubic inches.

Looking into Dr. Beyer's results, one cannot help some surprise, and perhaps a little incredulity, at the increase in weight stated to have occurred in two months training and playing, namely (average of two years), 7.55 lbs. I presume it may be inferred that this increase occurs every football season, so that the player who remains four years on the Naval Academy team has thus 25 or more lbs. added to his weight, besides his ordinary and normal growth during the other ten months of each year. I regret that, as yet, there are no statistics at West Point for comparison, but it may be positively affirmed that the weight increase from football training, if there be any, is much less. Certainly, Lieut. Koehler's table does not bear out Dr. Beyer's conclusions.

Concerning the average weight of players, to wit, 160.26 lbs., given in this table, a few explanatory words seem necessary. It is much smaller than the average weight of the West Point team; thus taking the regular teams for the six years 1897 to 1903 inclusive (1900 omitted because not obtainable), we find their average to be 170.5 lbs., or about 10 lbs. more. We account for this by the fact that the weight given in the table is that of graduation time and not that of the training season, and by the further fact that it includes all members of the football squad who graduated, substitutes as well as regulars. It is also useful to note, in this connection, that the weight of teams changes considerably from year to year; thus the average for the first three of the six years named above is 166.5, while that of the last three is 174.5, a difference of 8 lbs.

INJURIOUS EFFECTS OF ATHLETIC GAMES UPON THE BODY.

There is no doubt that the best effects of exercise upon the body can be, and generally are, obtained from athletic games and sports, provided the young man indulging in them is physically sound and properly trained. Assuming these two conditions, the result of athletics upon the growth and aptitudes of the body cannot be over estimated. The athlete with ample chest, well developed organs, and trained nerves and muscles, has a greater capacity for physical and mental work, is more resistant to the

germs of infectious diseases, and is therefore better equipped for the battle of life than the average man.

The effect of athletics upon heart and lungs is one of the most important and interesting phases of the subject, from the point of view of the hygienist, but one upon which more light is needed. The power of accommodation and adaptation of these organs to demands made upon them is simply wonderful. Thus, after violent exercise, in the trained athlete, we see the pulse jump from 70 to 150 or even 180, while respiration is doubled or trebled; but after a short period of rest, longer for the heart than for the lungs, these organs return to their normal state; they have not been taxed beyond their physiological capacity and are probably the better for the exercise. But it must be very difficult, at times, to decide whether safe limits are not exceeded and overstrain produced. Thus, Dr. E. Giertsen describes the effects of ski races near Christiana; several of the competitors had a pulse of 200, dicrotic and with omission of an occasional beat, who soon recovered without any apparent ill result; while others, with livid, cyanosed complexion, fluttering intermittent pulse, and irregular superficial respiration, interrupted by cough, did not recover for several days or weeks; these had doubtless exceeded their limits. Over exertion is very common in all forms of athletics, especially in running and rowing, and the symptoms of it are well known: nervous exhaustion, restlessness, irregular, dicrotic pulse, palpitations, cyanosis, fall of temperature, disturbed nutrition, etc. The damage thus inflicted to heart and lungs is not always perceived or appreciable, but that these organs suffer then, or later, in consequence of it, is not at all improbable. We may admit that in young men, in whom reparative forces are most active, the heart injured by an occasional overstrain does entirely recover itself; but if this overstrain is frequently repeated, the mischief may become permanent.

The athlete's heart, from continued active exercise, becomes larger and stronger; there is a regular thickening and strengthening of the ventricular walls, especially on the left side; in other words, there is simple hypertrophy, a physiological process intended to render the heart adequate to the unusual demands

made upon it. But there is a point when—the strain continuing or increasing—this physiological hypertrophy becomes pathological. The persistent increase of the tension to which the segments of the aortic valve are subject during diastole induces a slow, progressive sclerosis of those segments, and eventually aortic insufficiency. “So often is this form of heart disease found in persons devoted to athletics that it is sometimes called the athlete’s heart” (Osler).

Another ordinary and normal effect of violent athletics is temporary dilatation of the right side of the heart, due to the passive congestion of the lungs and increased intra-cardiac pressure existing in the primary stage of muscular effort. To this dilatation are chiefly due the increased size of the heart during and immediately after a hard contested game, and various murmurs often heard at that time over the base or body of the heart. These murmurs are attributed, by some observers, to the expansion, and pressure against the chest wall, of the conus arteriosus, or upper conical portion of the right ventricle from which the pulmonary artery arises; but they may also result from tricuspid insufficiency and probably other causes. This physiological dilatation of the right heart soon subsides, unless the effort has been too violent or too long continued, in which case collapse may supervene, with complete nervous prostration. Even then, recovery, although perhaps requiring days and weeks, is often complete. Of course, a repetition of such violent over-exertion is not unlikely to produce pathological alterations and permanent damage; cases of this kind are not at all rare in the experience of physicians.

The hearts of the members of the West Point football team, for 1903 (14 in number), were carefully examined a month or two after the close of the season. Contrary to expectation, I found no sign of hypertrophy of the left ventricle; in not a single case did the apex extend to the nipple line; the nearest came within $\frac{1}{4}$ inch, and another $\frac{3}{8}$ inch, of it, while the furthest was $1\frac{1}{4}$ inches distant. Most of these men had been playing football rather strenuously for several years; the quarter-back (apex half inch inside nipple line) for nine years, and the tackle (apex

three-quarter inch inside) for eight years. In a majority of these cases, however, there was an extension of the right border of the heart beyond the left edge of the sternum, a dull percussion sound, being elicited to the middle of the sternum in 6 cases, and beyond it in 3. It would thus appear that if any cardiac enlargement was present at all, it involved the right rather than the left ventricle. In most of the cases the aortic and pulmonary second sounds were markedly accentuated; otherwise the sounds were normal, except in two cases: (1) F.A.P. who had an aortic murmur with second sound and distinct impulse wave at apex; (2) F.W.H. who had a cardio-pulmonary murmur at apex with first sound; in this case the heart extended to the right edge of the sternum.

The effect of athletics upon the lungs does not appear to have received the consideration it deserves. During active exercise, more blood is pumped into the lungs; the capillaries swell up and press upon the air-cells; at the same time inspiratory efforts become deeper and more frequent; the result is a great strain upon the air vesicles which yield and dilate, producing, as shown by W. Collier, a form of physiological emphysema. The expanded lung interposes itself between the heart and chest wall, muffling the apex beat and causing the absence of all superficial cardiac dullness; a hyper-resonant note on percussion can also be elicited above the clavicles and along the edges of the sternum. Like cardiac dilatation, this emphysema is temporary and harmless, but we readily conceive how it may also, should violent exercise be frequently repeated, become pathological and permanent. Even then, as it seldom produces much discomfort, it is not unlikely to be overlooked until after middle life, when nutrition and metabolism begin to fail.

We must also bear in mind that any degree of emphysema, even when only temporary, adds to the obstruction of the flow of blood through the capillaries of the lungs and becomes a notable factor in the causation of hypertrophy, and possible dilatation, of the right ventricle.

The effects of athletics in after-life deserve serious consideration. Are the changes and disturbances produced in muscles

and viscera, by reason of frequent and violent muscular effort during college life, likely to have detrimental effects in the course of years?

The direct and normal effect of rational athletics is doubtless beneficial, and the young man with a strong, agile body the body in which dwells the sane mind, starts in life with every chance, in his favor. Whatever, in after-life, may prove superfluous in muscle or other tissue will be gradually lost. But what of the young athlete with huge biceps, broad back and hypertrophied heart, the hero of the diamond or gridiron, who, after graduating, settles down to a sedentary business life, as needs be the case with a majority of college athletes? While training they have developed an enormous appetite and acquired the habit of a generous diet, particularly rich in proteids. We know how difficult it is to change such a habit. Therefore we have an organism in which more energy is evolved than can be utilized; is it not to be feared that it may wear out rapidly, or become clogged with waste products?

Dr. G. Frank Lydston, of Chicago, himself an athlete of extended experience, says that after "cessation of active training * * * in many instances the result is disastrous * * * Every physician athlete with whom I have been associated in the last twenty-five years has coincided with me in the foregoing views." *

The ultimate effects will depend much upon the mode of life of the individual. Graduates from West Point and Annapolis who, as officers, continue the practice of an active outdoor life hardly ever suffer. Business men who keep in touch with athletic and country clubs, continue to exercise, in a milder form, and judiciously reduce their diet, especially fats and proteids, will very rarely suffer. The best we can expect from an enlarged muscular fibre, when compelled to comparative inactivity, is that it will degenerate quietly and give no trouble. Hypertrophied muscle, heart excepted, gradually loses size and density without detriment to the organism.

That the athletic heart may give rise to much trouble, in after-life, is a well known fact, recorded by many observers. As

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long as thirty-five years ago, Dr. Clifford Allbutt called attention to the slow but pernicious effect of the hypertrophied left ventricle in causing stretching and dilatation of the aorta with subsequent insufficiency of the valves, the patient often not seeking medical aid until after middle life. A few quotations from recent writers will be in point:—

From Dr. Lydston, already quoted: "The hypertrophied heart degenerates and degeneracy here means serious impairment of its structure and function. *Pari passu* with its degeneration it may develop dilatation; more or less fatty change may be found associated with myocarditis." According to Dr. W. Collier, of Oxford*, cases of sudden and severe breakdown at races are exceedingly rare; "whatever changes (in the heart) are set up may be sufficient to make the athlete, at the time, short-winded and perhaps cause precordial pain and discomfort, but do not produce any striking and alarming symptoms; the danger all lies in the future twenty years onwards." He mentions sleeplessness as a troublesome symptom often associated with athletic hypertrophy.

From Dr. Alfred Stengel†: "I believe there is a possibility of development of symptoms many years after cardiac strain, without any indications in the intervening time. In my own experience I have found a number of instances of distinct symptoms of cardiac disturbance in football players after an interval of months or years." He describes several cases in which the symptoms were: oppression, sensation of distension, sometimes palpitations, but always consciousness of the heart in some form or other.

From Dr. Hobart Amory Hare‡: "Physicians who are in the habit of seeing young men professionally will constantly have their attention called to a condition of shortness of breath on exertion, palpitation, or violent pulsation of the heart, * * *. In many of these youths there will be a history of the excessive use of tobacco, or that they have left college, where they had

**British Med. Journ.*, Feb. 16, 1901.

†The immediate and remote effects of athletics upon the heart and circulation. *Amer. Jour. of Med. Sc.*, Nov., 1899.

‡*Practical Therapeutics*, 8th edition.

been indulging in severe athletic exercise, such as running or bicycle racing, and have gone into business, where they lead a most sedentary life. In these cases the condition which exists is comparable to that of a steamer whose engines are too strong for her hull. The heart, which has heretofore been supplying the body of an athlete with blood, now finds itself too strong for the sedentary individual."

Dr. Benjamin Ward Richardson said that he did not believe there was a professional or celebrated amateur athlete in all England who, at the age of fifty, did not present symptoms of heart disease. Dr. Lydston warns athletes against the idea that they can continue to do their best work until middle life. Their arteries are particularly liable to sclerotic degeneration, and therefore they should not train nor enter competitive games after the age of thirty.

On the other hand, Drs. J. B. Blake and R. C. Larrabee*, after describing the acute cardiac dilatation and the murmurs resulting therefrom, occurring in most runners, as well as the constant presence of albumen in their urine, and by the unexpected statement that: "In the entire three years, we neither saw nor heard of any serious, persistent after-effects, and it is yet to be proven that even these strenuous contests leave behind them any permanent injury." It is to be noticed that their knowledge of the runners' condition does not appear to extend beyond the three years covered by their observations.

Likewise remarkable is the result of Dr. Morgan's inquiry on the "After-health of the Oxford and Cambridge Inter-University Crews," extending over a period of forty years, showing that the vast majority of these oarsmen were apparently benefitted rather than injured by their exertions, and that, as regards heart disease there was little appreciable difference between them and other non-athletic Englishmen in like circumstances. It may be remarked that such investigation is surrounded with many difficulties and that it would take but few errors or oversights to vitiate the conclusions; also, that these oarsmen were all picked men and, in the course of years, should, normally, show a much

*Observations upon long-distance runners. *Boston Med. and Surg. Jour.* Feb. 19, 1903.

smaller ratio of morbidity and mortality than their fellow countrymen.

As will appear further on, there is no record of heart trouble originating after graduation in any of the football players who have left West Point since 1892. It is to be noted that my information is obtained from the players themselves who may not know their real condition, and that there has not been a sufficient lapse of time to consider them entirely safe from the possible development of the after-effects described.

It is not only the circulatory system that is damaged in excessive and long-continued athletic training; other organs may likewise suffer. We have seen the danger of producing emphysema; what of the liability to pulmonary tuberculosis? A priori, such liability would seem unlikely. Tuberculosis grows only upon an enfeebled organism, and therefore would hardly be expected in an athlete, except after his vitality had been much depressed by disease. Emphysema is not mentioned by authors as a predisposing cause of tuberculosis, yet we readily conceive how collapsed and partly devitalized air-cells would afford a favorable nidus to bacilli. Regarding the influence of heart disease, we have been taught by Rokitansky and his school that there is antagonism between valvular affections and phthisis; that any cardiac lesion producing passive congestion of the lungs and increased venosity of the blood confers a certain degree of protection against the tubercle bacillus. But such doctrine has been shown to be much less absolute than at first believed, and to present many exceptions. However that may be, there is a strong impression among physicians whose attention has been drawn to the subject, that athletes are not to any considerable extent safeguarded against phthisis; that, on the contrary, the number of cases of that disease observed among them, within a few years after leaving college, creates a well-grounded suspicion that there may be here a relation of cause and effect. For instance, my attention has been called to at least five such cases. It may be that the picture of consumption in a man of fine physique, with all the prestige conferred by athletic laurels, makes a more lively and durable impression. We know that pugilists are particularly

liable to phthisis, but, in their case, there are other determining causes which complicate the question.

The liver of the athlete who does not adjust his diet to his quieter after-life, is likely to become congested, torpid and sluggish; such condition is generally accompanied by digestive disturbances and lithæmia.

One of the most frequent evil effects of violent athletics, is renal congestion and overstrain. Albumen is often, if not always, found in the urine after severe and protracted muscular effort, and it would be well if this symptom were taken as a warning that renal resistance is being overcome and interstitial nephritis is impending. Those young men who, in their normal state, before training, present traces of albumen, should refrain from all athletic contests.

STATISTICS.

In order to utilize the experience gained at the West Point Military Academy, and draw therefrom practical conclusions regarding the effect of athletics upon cadets and students in general, a list of all the members of football teams who graduated at West Point, since 1892, was prepared and their record examined. The total number listed was 159. Of this number, the mortality, from date of graduation to end of 1903, is as follows:

Killed,	3	5
Drowned	2	
Died of disease—	Typhoid Fever, 2	
	Cancer, 1	5
	Malarial Fever, 1	
	Acute mania, 1	
Total	10	

It thus appears that 5 died of disease, representing a mortality of 3.14 per 1000. During the same period of years, the mortality from disease for all graduates, 769 in number, was 19, representing a ratio of 2.47 per 1000. According to these figures, then, the effect of athletic exercises, if any at all, is rather to increase than to diminish mortality in after-life. But it goes with-

out saying that statistics based upon such restricted data have little value and no importance.

To the 149 living members, a circular letter was sent, containing the following inquiries: Condition of present health; weight and height at the close of their last football season and now; injuries received while on team and how long disabled on account of them; heart trouble or other disease contracted while playing, or since and referable to the game; probable effect of football upon academic standing; opinion as to its effect upon body, mind and character. To this letter ninety-six answers were received, a sufficient number to permit us to assume that they fairly represent the average opinion of the entire number. Of course, the testimony of these young officers, many of them until lately football enthusiasts, can hardly be considered unbiased; but we may certainly admit that they are good judges of the merits of the game, and that their conclusions, whether right or wrong, are given in a spirit of entire fairness.

Of the ninety-six who answered the circular letter, all report their present health as good, very good or excellent, with four exceptions; of these, three report their health as bad, attributing it to long tropical service; the fourth reports his health as only fair, because of cardiac enlargement.

The average weight of ninety of them at close of last football season was $166\frac{1}{4}$ lbs. Their present average is 173 lbs. In twenty-one the present weight is less than at time of graduation. It seems probable that the number given as the weight at close of last football season, was only approximative in some cases, the tendency being always, under such circumstances, to err on the side of excess. This may explain the discrepancy between the above average of $166\frac{1}{4}$ lbs. and that of 160.26 given before on Lieut. Koehler's table, the difference being too great to be accounted for by the ordinary loss of weight which takes place between the close of the football season and graduation time.

Of the eighty-one who give their height at time of graduation, the mean was exactly 6 feet 10 inches. Only eight report an increase of size since leaving the Academy, varying from a quarter to half an inch. It may therefore be accepted as a gen-

eral proposition that there is no increase in height after the twenty-third year.

To the question whether they received any injury, while playing, of sufficient gravity to disable them more than a day or two, fifty-one out of ninety-six, answer in the affirmative. The injuries include: concussion (one); dislocations of shoulder and clavicle (in five different subjects); fractures of nose, clavicle, finger, leg and ankle (in six different subjects); bruises and sprains, the sprains (wrenches and twists) of knees and ankles being most numerous.

The recipients of these injuries were under treatment in hospital for various periods of time, most of them from a few days to two or three weeks; at least twenty continued under treatment for a month or more, and five felt the effects of their hurts and were more or less disabled for several years, but have entirely recovered. Six are still reminded of injuries received while playing football, as follows: (1), sprained shoulder, "cannot throw a ball;" (2), dislocated shoulder, "still weak;" (3) synovitis of knee-joint, "giving occasional trouble;" (4) dislocated shoulder, "still a source of worry;" (5) sprained ankle, "still troubling me;" (6), knees wrenched, "one knee still a little weak."

The effect upon the heart is only mentioned in two letters; one reports "slight enlargement" and health only fair; the other, that "a former murmur which might have been due to athletics has disappeared.."

To sum up: many physical injuries but all entirely cured at the present time, with seven exceptions (including heart case), and of these seven excepted officers not one now completely incapacitated for duty.

According to the following quotation from the report of President Eliot for the year 1901-1902, the football players of Harvard do not fare better: "A quarter part of all who take part in this sport are injured enough to lay them up for ten days on the average, and a much larger proportion of those who really play the game are thus injured for the season. The changes in the rules during the past ten years have tended to increase the number of injuries rather than to diminish it. The temporary

injuries are so numerous that it is impossible to count on putting any particular eleven men into an important game on a given day."

The list of injuries to the Harvard men during the football season of 1901 was as follows: dislocations, elbow 1, clavicle 1, shoulder 1, finger 1; fractures, nasal bones 2, clavicle 1, ulna 1, metacarpal 1, rib 1; cuts 4; muscle and bone bruises 14; injuries about shoulders 7, about knees 16, about ankles 10; total 61. "None of the injuries above recorded were followed with permanent disability, or with serious after-effects."

EFFECT UPON STUDIES AND CLASS STANDING.

It is conceded that exercise is useful and necessary for the mind, and that so long as athletic games are played in moderation, within normal physiological limits, and only during the time allotted to recreation, there can be no question of their entire beneficial effect upon the mental faculties. But football, as now played is distinctly detrimental to intellectual culture:—

1. It is liable to absorb time which the athlete should devote to his books. His leisure hours are no longer his own; he must train and practice as bidden, whatever may be his class standing and need of study. Furthermore, how is it possible not to let thoughts of the past or next contest, where so much is at stake, take possession of his imagination, in the class-room, and interfere with application and concentration of faculties?

2. It is liable to produce intense fatigue. An exhausted body means a tired mind, one incapable of useful study. Each game involves the expenditure of an enormous quantity of nervous energy, and time is required to recuperate.

3. It is liable to cause many injuries, from which, indeed, the athlete recovers but for which he must be treated in hospital for days, weeks or months, valuable time irrevocably lost to him. Thus, adding together the days lost in hospital by the whole corps of cadets during the football season and immediately after (September, October, November and December) for the four years 1900–1903, and dividing by the number of cadets, it is found that the mean number of days lost in hospital by each cadet, in that period, is 13.41. If we make the same calculation

for the members of the football teams during the same four years, it is found that the number of days lost by each is 27.35, or more than twice as many. This takes no account of the duties cadets may be excused from without admission to hospital, and it is notorious that players are thus excused much more frequently than others.

To the question, what effect athletics had upon their academic standing, thirteen state that it was beneficial, twenty-two that it was bad, and the majority (of the ninety-six answering officers) that it was not appreciable, neither good nor bad. Such a question, considering the circumstances surrounding the players at the Academy, is difficult to answer, and we are more likely to reach the truth of the matter from the consideration of the records and other external facts. We have already seen how football interferes with study, and any such interference, during three months of the academic year, must needs have some effect upon examinations.

An inquiry naturally suggesting itself in this connection, as likely to throw light upon the comparative mentality of the football player, is: how does he stand in his graduating class? This was computed for the 159 players belonging to the twelve classes from 1892 to 1903 inclusive. Reducing each class to a basis of 100, then taking the mean standing of the players in each class on that basis, and averaging the classes, it is found that the football player stands 50.38, or almost exactly in the centre of his class.

If we call the first ten, in each graduating class, honor graduates, we find that for the entire number of graduates (769) the percentage of honor graduates is 15.40, while for football players it is 14.46. The ratio of honor graduates among football players has been diminishing of late years; thus the mean yearly number for the period 1892-1899, inclusive, was 2.37, while for the period 1900-1904, inclusive, it is exactly 1. It seems as if those cadets anxious to graduate near the head of their class realize the difficulty of doing so if members of the football team.

A certain number of cadets are turned back, that is to say, remain five years at the Academy before graduating. The per-

centage of "turned backs" for the whole number of graduates, from 1892 to 1903 inclusive, was 11.78, or nearly one out of each eight, while for the football players, during the same period, it was 16.98 or one out of each six.

In his report for the year 1894, the Superintendent of the Academy (Colonel Ernst) devotes considerable space to athletics, and concludes "that football as controlled here (West Point) had been beneficial to scholarship and an aid to discipline, and should receive a proper degree of encouragement." As basis for such opinion (as regards scholarship), he gives a statement of places gained and lost in the various branches of academic studies by the football players from September to December of the year 1893, that is to say, during the football season. The aggregate result, as computed from the Superintendent's figures (none given for the fourth class), is as follows:

	Gained	Lost	Excess of loss
1st class.....	73	85	12
2nd class.....	54	97	43
3rd class	92	161	69
Totals	219	343	124

It thus appears that the number of places lost exceeded by 124 the number gained, the loss being greatest in the third class, less in second class and least in first class, as would be normally expected. From this result it is impossible to concur in the conclusion of Colonel Ernst that football is "beneficial to scholarship."

There is another factor in this inquiry, not expressible in figures, but none the less operative at the Academy as well as at all colleges. It is the indulgence and favor, conscious or unconscious, shown players by professors and instructors (specially if former athletes themselves) in recitations and examinations, whereby their standing is higher than if marked strictly according to merit. Instructors may not readily acknowledge this very natural complaisance, but there can be no reasonable doubt of its existence and effect.

From all that precedes, we are safe in stating the simple proposition that football, as now played, is prejudicial to mental culture.

EFFECT ON CHARACTER.

The effects of football upon character are good and bad. Let us first look at the dark side of the picture.

Football, like some other sports, such as wrestling, boxing, chausson, in which man is set against man, is liable to bring out a certain brutal spirit in the players, as well as in the spectators. Where so much depends upon pluck and muscle, self-control is difficult; it seems impossible, under excitement and provocation, not to use unnecessary force, not to let loose the savage element in our nature, and seek victory by unworthy means. It is notorious that questionable methods, including trickery, deception and evasion of rules, are countenanced and even encouraged by coaches.

It is also true that the enthusiasm and delirious shouts of the multitude invest football with a glamor and importance which must deeply impress the average player and impel him to the belief that athletics are the chief end of college life, and that a man is to be valued in accordance with his muscular development and vital capacity; hence self-satisfaction, ungentleness, a disposition to run over everybody's opinion and bully his comrades; now and then a star player becoming in after-life, "selfish, plausible and tricky," as described by one of my correspondents.

People witnessing a football game are supposed to leave behind them feelings of pity and commiseration. They come to see a battle fought by blows and strategy, and to admire all means conducing to victory. They expect to see young men lame and sore, hardly able to stand, not rarely knocked windless or senseless and carried off in the arms of comrades or on a stretcher. But all this is part of the game and no sympathy need be wasted on the victims; nay, we may even jeer at them, as did the Roman populace at the fallen gladiators. Spectators are often deeply moved, indeed, and disappointed, but not because anybody is hurt; only because their team is losing and the prestige of their favorite college is compromised; a defeat meaning, to many of them, the worst calamity that could befall the institution whose colors they wear.

President Eliot of Harvard University, in his report for the year 1901-1902, already quoted from, animadverts as follows:

"Moreover, the ethics of the game, which are the imperfect ethics of war, do not improve. The martial axiom—attack the enemy's weakest point—inevitably leads to a deliberate onslaught on the cripple or the convalescent in the opposing line; and the habitual violation of rules, if penalties be escaped, is regarded by many as merely amusing."

The friends of football contend that the evils attending the game are not inherent in it, but an unhealthy growth which can be repressed and eliminated by the enforcement of proper rules and decisions, and the judicious selection of coaches and players. I agree with them and believe that it is thus quite possible to reduce the ethical objections against football to such an extent that they will be clearly outweighed by the decided moral advantages of the legitimate game.

What are these advantages? In the circular letter, as already mentioned, the question was asked regarding the effects of football upon character. About half a dozen officers state that the game has no effect upon it, either good or bad. Only one states that the effect is bad. The great majority are of opinion that it is beneficial and that the game, under suitable supervision, is to be recommended for its good effects upon body, mind and character, not only at West Point and Annapolis but at all our colleges.

Young men who go into training for athletic games are subjected to a special regime of life, primarily intended to benefit the body but which also benefits the moral character. Self-restraint underlies it; few, if any, indulgences are permitted; no smoking, no drinking of alcoholic beverages, no dissipation. Such regime requires the exercise of will-power, and the will-power which we develop in mastering ourselves, if only for a season, is of the greatest benefit to our moral nature. Furthermore, strenuous physical work subdues passions and leaves no room for morbid or debasing thoughts.

To play football successfully, the members of the team realize that the battle must be planned by the leaders and that subordination and unquestioned obedience to those leaders are absolutely necessary. No other game inculcates more forcibly

the efficacy of discipline. The battle on the gridiron, as elsewhere, is oftener won by generalship than by mere strength. But, within certain limits, each player has more or less freedom of individual action, calling for the exercise of most useful mental qualities; clear and accurate judgment, prompt decision and immediate action. Self-control and self-denial are cardinal virtues of the football player; in the midst of provocation, foul play and insult, he must curb himself, guard his temper and keep a cool head, with an eye single to the object in view, effacing self for the sake of team victory. Thus a spirit of fairness and sportsmanship is developed, capable of appreciating prowess in the enemy, and of allowing all that fairly belongs to him without grumbling. Other manly qualities are manifestly brought into play: determination, pluck, resourcefulness, self-reliance,—all of great avail in the struggle of life.

The spectators are also doubtless benefitted along the same lines. They witness feats that border on heroism and their admiration is aroused; it is impossible to see great pluck, endurance, fine strategy and skillful team-play without an increase of our appreciation for all virile qualities, and it is in human nature to imitate what we appreciate and admire. It is true, the shouting spectator cares but little for the feelings of the disabled athlete, but he also learns to endure his own bodily ailments with more patience and fortitude.

Now it is obvious that the qualities demanded, and most likely to be developed, by football playing, are precisely those most needful to the soldier, those which on the battlefield, will stand in the best stead to the officer. Therefore, I am led to the conviction that this game, although somewhat dangerous to the body and rather seriously interfering with mental culture, is, nevertheless, to be commended, encouraged and continued at West Point and Annapolis, the good greatly preponderating over the evil at the Military and Naval academies.

As regards colleges, the case is different. There, the desirability of developing the military aptitudes is not so apparent; it is true that the same mental and ethical advantages obtain, but, so long as football is what it is, they can be cultivated in some other manner, less injurious to body and curriculum. Football,

at our great colleges, is not so easily subjected to strict control as at the above national Academies, and more likely to run into professionalism, with all its objectionable features. There is also greater loss of time to players and their fellow students; to players from the necessity, each week, of travelling variable distances to meet opposing teams, and to the other students who, every afternoon, are attracted in great crowds to the practice field.

It is true that football gives a great impulse to the esprit de corps of a college, and a rare opportunity to practice its yell, in tympanum-splitting unison. It is also believed that football prestige is a profitable advertisement, and that victory on the gridiron is followed by an increased number of matriculating freshmen. But these advantages have never yet been seriously put forward by any faculty as an argument in favor of the game.

Upon the whole, I believe that, unless the football methods now prevailing are substantially modified, it would be greatly to the benefit of college students were the game eradicated.

CONCLUSIONS.

To sum up, and draw such conclusions as appear warranted.

Football, as developed in this country, is an especially American game, appealing strongly to our love of the strenuous and combative arts, and therefore difficult to control and keep within safe and proper limits. Stringent rules should govern it. All trickery, unfairness and deception must be eliminated. Unless it be kept clean, sportsmanlike and gentlemanly, it has no *raison d'être*.

As regards mere physical development, better results can be obtained by graded gymnastics and less strenuous games. It is more or less dangerous to the body, and in order to reduce liability to injuries, and the possibility of disability in after-life, certain important conditions must be observed. No young man should play it who is under eighteen, and not declared physically sound after careful medical examination. He should be well developed in muscle and chest capacity for his age and height. Careful training is absolutely necessary, that is to say, an intelligent grading of work without sudden violence, so as to develop the highest degree of efficiency and endurance without harm to any of the organs. It is by overtraining or overstraining that the heart, lungs or kidneys may be permanently injured, and that

are laid the seeds of future evil. The well trained player overcomes his enemy without hurt to him or to himself; it is the beginner or blundering amateur who does most of the mischief.

Since football is positively detrimental to studies, no one should be allowed on the team who stands so low in his class that his chances of graduation would be jeopardized.

Football is mostly commendable for certain traits of mind and character which it brings forth, and which render it a valuable game for the Military and Naval Academies.

That football can, and should, be modified by the elimination of its objectionable features and thus made entirely acceptable to all educational institutions, is admitted by many, if not most, of its best friends. There should be less mass-play, with its heaps of writhing bodies; more kicking and running; more opportunities for strategy and tactics. An open game would also be much more interesting to the public. The player should not be obliged to exhibit himself in the arena, carrying fourteen pounds of armour and padding, a deformed and grotesque object. Is it possible to picture to our minds the athletes of the Olympic games in such guise?

In all inter-collegiate games, modifications or improvements, to be effective, must be participated in, and binding on, all the leading institutions; such concerted action is always slow and difficult, but certainly not impossible. College faculties, judging from their utterances, seem to regret the very great exaggeration given to athletics of recent years, especially the undue importance assumed by football, but do not appear to be taking any decisive action to correct the evil. Upon them devolves the duty of vigorous initiative.

To be really useful as a means to education, a game should be open to the majority of the students; but so much is exacted from a football player, in weight, strength and vital capacity, that few come up to the standard and a majority are debarred. The rules should be so modified as to permit the admission of youths who would make up in speed, agility and adroitness what they lack in weight of flesh. If football is good for the few it must be good for the many and should be brought to the level of all able-bodied students of normal physical development. This is especially true of West Point and Annapolis. In these institu-

tions, football should be recognized as one of the chief means of physical culture. Instead of one team in each Academy, there should be three or four, each composed of members selected from all the classes, so that the teams may be about evenly matched. The playing of team against team, in the same institution, would bring out much of the stimulus and excitement now only aroused by games with other institutions.

Were this system adopted in colleges, there would not be the same eagerness for contests with outside teams, the danger of lapsing into professionalism would be diminished, and much less time wasted.

Some of the defects of the present system are well exposed by the editor of the *Medical News*:* "Instead of carefully training each and every student physiologically and systematically, so that his bodily defects shall be corrected and so that his body shall be a supple, strong and beautiful servant of the mind, there is a concentration of all training upon one man out of a hundred, for a special and not by any means beautiful purpose; ninety-nine let one do their exercising (excepting the vocal part) for them, and we have the noteworthy result—vicarious athletics, or gymnastics by proxy."

Since football is to a great extent, a military game and therefore well adapted to cadets and midshipmen, it does not follow that it is suited to soldiers and sailors. They have not received the thorough training which is indispensable, and, at their age, such training is hard and often impossible. Furthermore, they are less capable of the self-control and subordination absolutely necessary for a clean game. The result is that when soldiers play football the casualties are likely to be many and serious: thus in his sanitary report for November 1903, the surgeon of Fort Hamilton states that "twenty-one injuries incident to football, occurred in the command between October 9th and November 30th, embracing dislocations of the hip, dislocation of the shoulder, fracture of the collar bone, severe sprains and contusions of shoulders, knees, wrists, ankles, and muscles." Many other post surgeons have had the same experience. As a general rule, football is not for soldiers, nor for anyone who does not receive the necessary training before the end of his twenty-first year.

* November 18, 1903.

NOTE ON MALINGERING, WITH REPORT OF CASES.

BY LIEUTENANT SAMUEL M. DE LOFFRE,
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THE diagnosis of malingering is fraught with danger to the surgeon for several reasons: (1). The liability of error involving the working of a great injustice to a man below him in rank who must needs take the test treatment prescribed for him, (2). The possible loss of reputation as a professional man. (3). The liability of error with the consequent incurrence of the wrath of the soldier's company or troop commander, and perhaps of every other officer of the line who learns the circumstances; doctors are never forgiven their mistakes,—other men are.

A young surgeon, on entering the service, is usually the plaything of every hardened, experienced "dead beat" in the ranks. He has seen nothing like it in civil practice outside of the few hospital beats that make the rounds of the charity hospitals in large cities. Where patients do not have to pay for medical treatment by the visit, as in the army, the doctor is much in demand and often demanded, sometimes to cure disease, sometimes simply as an antidote to loneliness. Fortunately the enlisted man knows little of the real symptoms of disease, and many cases are detected immediately, simply because they are overacted; the parts they are playing are usually not sufficiently studied, and well directed remarks or suggestions from the surgeon will at once develop a new set of movements or symptoms on the part of the unsuspecting patient.

I do not wish to be quoted as believing that there is much malingering in the U. S. Army. In many cases, army surgeons are too severe with the enlisted man; often the latter may simply feel bad; he may have a slight headache or some symptoms of indigestion; he may be worrying over some family trouble, or suffering from nostalgia: We, as officers, can, under these conditions, cut short our duties for that day, or ask a brother officer to take our place while we lie down or seek consolation; they, as

enlisted men, must go on the sick report with a temporary disability that can be ascertained to exist only from subjective symptoms. We can not prove the man is not ill, nor can we prove that he is ill. The surgeon's good judgement, humanity and sympathy may do good in these cases, when harsh treatment would discourage the soldier and perhaps drive him to malingering or desertion as a last resort.

Of course there is no didactic treatment for malingering; the surgeon's ingenuity and experience must be brought into play, and the bounds of humanity should never be overreached. A good rule to follow is to order or give no treatment or test that is too severe, or that could not be used without some benefit accruing to the patient if he really had the disease he is feigning.

Case I—Private Stephen M. Overstreet, Troop "L," 3rd Cavalry, four months service, was admitted to the ward May 15, 1903. His case was diagnosed acute neuritis of the left median and musculo-spiral nerves, with paralysis of the extensor muscles of the left hand and wrist drop. His forearm and hand were slightly swollen and red, probably from friction, self administered. His fingers assumed a markedly flexed position, and he declared he had completely lost all power in that hand. He had fallen from a horse the day before, and had sustained this injury.

A strong suspicion gradually entered my mind that this case was one of malingering, because the acute stage of inflammation was prolonged beyond its ordinary time; on June 15th, I advised the administration of an anaesthetic and the case was immediately diagnosed. On recovering from the slight degree of anaesthesia to which he was subjected, his arm reverted to the status of paralysis. Hydro-therapy was thought advisable, and on June 17th, the wardmaster procured a tub of cold water, placed him in it after tying his well arm to his body, and told him that if he wished he could use his paralyzed arm with which to help himself out. This he did in less than five minutes. The other patients in the ward ridiculed him to such an extent that he deserted the next night, before charges could be prepared against him.

Case II—Private W. H. M., one month service, admitted November 16, 1903, with the diagnosis of moderate sprain of right knee, due to a fall. Dr. Wales, Dr. Pease and I agreed on this diagnosis after much discussion, with a mental reservation that the case was either one of hysterical joint or of malingering. No improvement in his condition followed, and on March 1, 1904, the man was told that a cartilage had slipped in his knee joint, and that an operation for its removal would result in a complete recovery in a few days. His knee was prepared, a slight degree of anaesthesia was induced, and a small cutaneous incision one-half inch long was made and sewed up immediately. The pain of the incision was easily felt by the patient and made the desired impression. A dressing was applied with a splint, which

remained on four days: he was then returned to duty with the firm conviction that he was cured, and has not been on the sick report since.

Case III—Private J. H. B., seventeen months service, admitted Feb. 20, 1904, with diagnosis of acute muscular rheumatism of lumbar and cervical muscles: he declared that the pain was so exquisite he could hardly move. He was put on the usual treatment, but showed no improvement. On making my rounds in the ward I was struck by his facial expression: one of profound depression and discouragement such as no human being but a malingerer can assume. The wardmaster, on being questioned, readily admitted seeing him in good spirits at all other times of the day, and as soon as the surgeon's back was turned. On Feb. 27th, he was told his kidneys were probably bad, and that an operation was advisable to expose them with a view to their removal if diseased. His back was scrubbed up with an extra stiff brush by a willing and muscular hospital corps man, and a bichloride dressing was applied. This ordeal proved that 'his spirit was willing and his flesh was not weak,' for the next day he declared he was no better: his manner showed however that it was simply fear of ridicule that kept him from surrendering, so the operation was performed March 1st. He was partially anaesthetized, his back scrubbed again, and acupuncture of the lumbar muscles performed with a four inch needle of large calibre, in a conscientious manner. The following day he was returned to duty with the honors of war, having proved his "nerve" and the absence of disease.

Case IV—Private G. K., was enlisted by me in March, 1904. Two months later he complained of severe lachrymation, burning of eyes, and inability to read his music. The test cards showed right and left vision to be 20/200. I placed him under the influence of atropine and made a careful ophthalmoscopic and retinoscopic examination, finding the eyes normal. Then the proper test lenses were applied: but no lenses or combination of lenses ever gave the same results from day to day: finally it was observed that a 3.50 D.C. lens would give as good vision as a .25 D.S. or a plain glass. He was then put to bed in the ward with both eyes tightly bandaged and his case was investigated revealing the fact that he had told a comrade in the Band, who was going to desert, that he knew a better and less dangerous way to get out of the service,—pointing to his eyes. The bandages were left on eight days, and then he was returned to duty with a brief but emphatic statement of the opinion the writer had of his poor attempt to deceive such scientific instruments as a box of test lenses and an ophthalmoscope.

Case V—Trumpeter L. A., ten months service, was admitted May 14, 1904. He was brought in from the target range on a stretcher, apparently unconscious, his mouth and face covered with foam, eyes tightly closed, breathing labored, pulse and temperature normal, convulsions of right arm and leg. Doctor Parkman first saw him and noted that he resisted when an attempt was made to open his eyes. I then made pressure on his supra-orbital notch and elicited quite a grimace of pain; there were no tooth marks on his tongue and no history of injury to head, so a provisional diagnosis of

malingerer was made. I had him put to bed and watched him through a window. He soon recovered sufficiently to roll a cigarette, and was smoking when I reentered the ward; on seeing me he made some passes in the air with his hands, grasped my blouse, and rolled his eyes, grossly feigning insanity. I ordered the attendant to get the restraint apparatus ready, and then explained to the patient the folly of overacting and the difficulty in feigning diseases well enough to deceive a doctor. Before I had concluded my remarks he was very quiet indeed, and no restraint was necessary. He remained on starvation diet the remainder of that day in spite of his protestations, and was returned to duty the following morning. This was the most barefaced case of malingering I have ever witnessed.

LOSSES IN THE MEDICAL STAFF OF THE JAPANESE NAVY DURING THE RUSSO-JAPANESE WAR.

THE *Sci-I-Kwai Medical Journal* gives the following list of accidents among the Japanese medical officers since the declaration of war against Russia: Dr. Seki, Fleet Surgeon, and Dr. Uyemiya, First Class Assistant Surgeon, were drowned at Port Arthur with the sinking of the battleship *Hatsuse* on May 15th, and Dr. Kusaka, First Class Assistant Surgeon on board the *Yoshino*, met the same fate by the sinking of that cruiser on the same day. On the 20th of the same month, Surgeon Koike, on board the *Akatsuki*, was killed by a fragment of shell at Port Arthur. Dr. Ishikawa, First Class Assistant Surgeon, on board the *Hayatori*, was also killed by a shell fragment on September 3. Dr. Nishiuchi, Chief Surgeon of the *Heiyei* was drowned, when that gun-boat was sunk off Port Arthur on September 18th. Besides these six medical officer, one chief medical attendant and eight medical attendants were killed or drowned, and four medical attendants wounded. Surgeon Minobe, Surgeon Kazu, and First Class Assistant Surgeons Nunogami, Miyagawa, Watanabe and Uemori were wounded but all of them recovered soon after and are now serving respectively on ship or land. Six surgeons have been attacked by infectious diseases: Fleet Surgeon Satake, Surgeon Yano, Surgeon Miyao, and First Class Assistant Surgeon Kasamatsu were admitted to Hospital for dysentery, while First Class Assistant Surgeon Nakano and probationary Assistant Surgeon Orimo were admitted for typhoid.

Contemporary Comment.

THE MILITARY HYGIENE OF DYSENTERY.

By MANUEL M. SALAZAR,

MEDICAL OFFICER IN THE SPANISH ARMY.

ANGLICIZED BY LIEUTENANT CHARLES NORTON BARNEY,

MEDICAL DEPARTMENT, UNITED STATES ARMY.

IN 1898, at the very time Spain was losing so many of her soldiers from epidemic dysentery in Cuba and the Philippines without knowledge of any certain means of differentiating the disease from the numerous other intestinal affections which were found there and without knowledge of any means of establishing a truly effective prophylaxis, the Japanese, Shiga, a pupil of the accomplished Kitasato, discovered the specific germ of this malady and established the basis for certain microbiologic diagnosis and rational hygiene, especially applicable to military medicine.

Other investigators had previously so often announced other bacteria as causes of dysentery that Shiga's discovery was not at once accepted; but in 1900 it was confirmed by Krause in an epidemic among laborers in Westphalia, and by the Americans Strong and Flexner in Manila and Porto Rico; later by Pfuhl in the German troops of the China Expedition; and still later by Drigalsky, Mueller and others, in other epidemics. Finally at the "Institut für Infektions Krankheiten," Berlin, of which Prof. Koch is the director, Martini and Lentz have demonstrated, by means of cultures obtained from Shiga, Krause, Strong, Flexner and Pfuhl, that the bacilli which were found by these investigators in epidemic dysentery in Japan, Germany, the Philippines, Porto Rico and China are essentially the same.

This confirmation of Shiga's discovery has put an end to the confusion which has existed up to this time in the etiology and classification of dysenteries. There is a fundamental difference

in etiology and pathological anatomy between amoebic dysentery—the variety which is so often associated with abscess of the liver—and bacillary dysentery. Undoubtedly there are other intestinal affections which resemble bacillary dysentery and will later be found to be due to other causes; but nevertheless, Shiga's discovery has caused a great advance in the diagnosis and prophylaxis of that form of dysentery which is of the most importance to military medicine.

The bacillus of epidemic dysentery belongs to the group of the colon bacillus and the typhoid bacillus. It is a rod with rounded ends, as long as the typhoid bacillus, but thicker. The bacilli have a tendency to lie side by side in groups, which often contain many degenerative forms. The bacillus multiplies readily in the ordinary culture media, but degenerates more quickly in liquid media than in solid. It does not form spores. The cultures give out a slight spermatic odor. The bacillus stains well with the ordinary anilin colors and is decolorized by gram. The most salient characteristic which differentiates it from the colon and typhoid bacilli is that it has no flagellae and is non-motile. In hanging drop preparations it exhibits only a slight molecular vibration, which should not be confounded with the free movement from place to place which is exhibited by the other two—especially by the typhoid bacillus. Its cultural characteristics more nearly resemble those of the typhoid bacillus than those of the bacillus coli. It does not give rise to indol, and it does not ferment lactose. On alkaline potato it grows as a yellowish film. It does not liquefy gelatin. Its colonies, in this medium, have some resemblance to those of the typhoid bacillus, but are not as delicate in details of form, in color and transparency.

One of the things which have surprised me most in working with this bacterium is the ease with which it degenerates and dies, especially in liquid media, and the slowness of its resistance to disinfection. In pure cultures it scarcely lasts a month. In the stools it dies in 48 hours. In drinking water and milk it does not last longer than 8 days. In sand or dry earth, 12 days. In clothing impregnated with pure cultures it lives about 17 days. Direct sunlight kills it in half an hour. In boiling water it re-

sists only a few minutes, and in water at 58 degrees C. it dies in an hour. In a 1 to 20,000 solution of sublimate, and even in five per cent alcohol, it disappears rapidly.

But on the other hand, in the human body—in the intestinal mucosa of dysenterics—it will live and grow with a most discouraging persistence, which accounts for the difficulty of cure in these cases, the long course of the malady and the tendency to relapse.

From these facts we may draw a conclusion which is of importance in prophylaxis, viz. : that there is greater danger of infection in persons than in things.

The bacillus is being constantly thrown off in the stools, and these are the infecting medium—the source of epidemics.

The chief lesion in bacillary dysentery is a coagulation necrosis or diphtheroid inflammation of the mucosa of the large intestine, sometimes extending for a short distance into the small intestine. The specific bacillus is found in the sloughs, and never reaches beyond the mesenteric glands. It is not found in the blood, nor in the spleen nor in the urine, nor in any other organ or tissue, but the intestine and mesenteric glands. All lesions of other organs, kidneys, liver, etc., are produced by toxins absorbed from the infected intestine. *

The fact that bacillary dysentery is not, like typhoid, a septicaemia, but, like diphtheria, a toxaemia dependent upon a localized infection, gives hope that serum therapy may be more effective in this disease than it is in typhoid.

The agglutinating power of the blood serum appears rather late in the course of the disease, but in the application of the serum reaction to the investigation of the bacteriology of the stools we have ready means of definitely diagnosing these cases early, so that, as Koch points out, there is no longer any need of our relying on the purely defensive tactics which we have heretofore resorted to in fighting epidemics of dysentery. We can do more than proceed only against those cases which come to our notice. We can adopt more aggressive tactics. We can go out and look for cases, and, with the bacteriological means now at our disposal, we can definitely determine within 24 hours the presence or absence of the specific bacillus in any case which is suspected of harboring it.

It is with dysentery as it is with typhoid and with cholera,—the most dangerous patients are not those which are prostrated in bed and almost unavoidably become the object of every kind of precaution, but those others which, with a slight diarrhoea, an abortive attack or an ill defined convalescence, are up and about among the well, scattering broadcast the seeds of their disease.

The early diagnosis of suspected cases can now be made as follows: In some cases the Shiga bacillus can be found in almost pure culture by simple microscopic examination of the mucus from the stools, but in any case bits of the mucus, after being washed in sterile water, can be sown on plates in a special culture medium which will favor rapid development and easy differentiation of the colon-typhoid group of bacilli and at the same time delay the growth of other germs. This culture medium, as prepared by Drigalsky and Conradi, consists of ordinary agar to which is added neutrose, lactose, tornasol blue and crystalline violet. Professor Wassermann leaves out the violet in order to favor the more rapid development of the dysentery bacillus. After the plates have been incubated at 37°C for twenty-four hours, they are examined. As the colon bacillus forms lactic acid from lactose its colonies appear red, on account of the action of this acid on the tornasol blue. Colonies of typhoid and dysentery bacilli remain blue, and the latter can easily be differentiated from the former by characteristics which have already been mentioned,—by their non-motility in hanging drop preparations, and above all their agglutination reaction with the serum of patients suffering with, or convalescent from dysentery, or to the serum of animals which have previously been immunized against the dysentery bacillus.

By this means, in the face of an epidemic of dysentery we can now fix the diagnosis in contacts and suspects within twenty-four hours; and if we begin the investigation early enough, if we prosecute it on a large enough scale, and if we institute at the same time and on the same scale the prophylactic measures which are the corollary of our knowledge of the means by which the disease is spread, viz., isolation of dysenteric patients and convalescents, disinfection, especially of the stools, purification of water and food, prevention of overcrowding, etc., we can cut the epidemic short.

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DR. SAMUEL PRESTON MOORE,
SURGEON GENERAL, CONFEDERATE ARMY. 1861-1865.

Editorial Expression.

The Surgeon General of the Confederate Army.

DR. SAMUEL PRESTON MOORE, SURGEON GENERAL
OF THE CONFEDERATE ARMY.—1861-1865.

REAL as was the problem of 1860 to southern civilians it was infinitely more desperate to the officers of southern birth who wore the uniform of the United States service. The gun which boomed out the tocsin of state rights in Charleston harbor brought many a conscientious heart into the most painful of dilemmas. Of those whose native states declared in favor of secession from the Union, many determined to stand by the colors under which they had been serving, but many more, and by far the larger number believed that they were responding to the call of undeniable duty in going with their states. Among the most distinguished officers who took this step was Major Samuel Preston Moore, Surgeon in the United States Army, who at the time of the inauguration of hostilities between the North and South was on duty as Army Medical Purveyor at New Orleans, and who some months later was appointed Surgeon General of the Confederate forces.

Dr. Moore was born in Charleston, South Carolina, in 1813 to Stephen West Moore and Eleanor Screven Gilbert, his wife, and was a lineal descendant of Dr. Mordicai Moore who came to America in the train of Lord Baltimore^a as his physician. His family was connected with many of the distinguished personages of early American history and two of his brothers also held commissions in the ante-bellum United States Army,—Colonel West Moore and Dr. Charles Lloyd Moore. His early education was acquired at his home town where he also graduated in medicine from the Medical College of the State of South Carolina on March

8th, 1834. Soon thereafter, March 13th, 1835, he obtained an appointment as Assistant Surgeon in the Army, and at once entered upon a long western service at Fort Leavenworth, Fort Des Moines, Fort Gibson, Mo., and Fort Coffey, Kans. He then went to Florida where he served at various stations closing his tour of duty at Camp Barrancas near Pensacola, which he found garrisoned by a detachment of the Seventh Infantry under command of Major Jacob Brown who afterwards died of wounds received in defense of the works at the mouth of the Rio Grande river, since known in his honor as Fort Brown. Major Brown's home was made attractive by two daughters, one of whom became the wife of General Stewart Van Vliet while the other captured the heart of young Dr. Moore, became his wife in June 1845, and his constant companion until his death.

The following August saw him en route with troops to Aransas, Corpus Christi and the Nueces River, in the territory then in dispute between Texas and Mexico, and in preparation for the Mexican War. His services in these operations lay altogether along the Rio Grande and most of the time at Camargo, a Mexican town opposite the post in Texas now known as Fort Ringgold. At the close of the war he took station at Jefferson Barracks and on April 30, 1847 attained the rank of Major which he retained until his resignation from the United States service in 1861. He was on duty with troops detailed to guard the trans-continental emigration of 1849, and passed two years at Fort Laramie. In 1852 he returned to Texas and, after a few months at San Antonio, proceeded to Fort Brown where he remained for the ensuing two years. Thence he repaired in 1854 to Governor's Island but after a year proceeded to West Point where he remained until April, 1860, at which time he was placed in charge of the Medical Purveying service in New Orleans.

In common with the majority of army officers he had never actively engaged in political discussion, but he shared to a high degree in the loyalty to his native state which animated so many of his comrades and passed many hours in anxious reflection upon his duty in case of the secession of South Carolina from the Union. Home ties, however, finally prevailed and when his

state withdrew its allegiance to the government of which it had formed a part, he too resigned his commission and retired to Little Rock, Arkansas, with a view to establishing his residence there, and engaging in the practice of his profession.

It was not a period however when trained military men could hide themselves from the loud demand for them and it was not long before Dr. Moore was so beset with appeals from his friends and requests from the authorities to participate in the operations then opening up, that in June 1861, he yielded to the pressure to which he had been subjected and accepted the Surgeon Generalcy of the Confederate Army. He found himself from the first confronted with enormous difficulties. The South had no trained military medical corps to attend its troops nor to serve as a nucleus about which the service of the disabled could be aggregated. Many of the brighter of her medical men preferred to seek glory at the cannon's mouth rather than in the corridors of the hospital. The Geneva convention then had not neutralized the medical service and medical supplies, and it was always difficult and often impossible to obtain the customary agents, instruments or dressings for the treatment of the sick and wounded.

He promptly set to work to organize a medical department. Examinations were prescribed by which the incompetent were excluded and eliminated from its personnel. A system of assignment was established, suitable reports were provided for, and order was brought out of what had been as near military medical chaos as possible. He recognized the advantage of discussion and mutual contact among his officers and in furtherance of this idea organized in August, 1863, at Richmond, the "Association of Army and Navy Surgeons of the Confederate States," and became the first President. He was also active after the war in a similar association organized in 1874, of which he was also elected President, and before which at Richmond in 1875 he gave a valuable presidential address upon the Medical Department of the Confederate Army.

Blockades and the enemy's lines cutting off the obtaining of supplies from other countries, he set to work to utilize the resources, afforded by his own territory. Careful attention was paid to

the preparation of drugs from plants indigenous to the southern soil; laboratories were established for their preparation; and depots were located for the distribution of the products thus manufactured.

Books too were scarce and he had prepared under his own personal supervision a "Manual of Military Surgery," which was published in 1863 and distributed to the forces. In 1864 he inaugurated the publication of "*The Confederate States Medical and Surgical Journal*," for the information of his corps, which had a brilliant career of a little over a year.

He organized and equipped many hospitals and for him is claimed the distinction of the introduction of the hut and one-story pavilion hospital which attained so great a vogue in both the southern and northern armies, and stands still as the best model for hospital construction yet devised.

After the close of the war with the north and the consequent disbandment of the Confederate Army, Dr. Moore remained in Richmond, not engaging in active medical practice, but interested mainly in agricultural and educational matters, being for many years a member of the board of managers of the State Agricultural Society and of the Richmond school board. In the latter work he was especially active, endeavoring to lift public education from the realm of politics and to establish it on the best scientific and highest moral plane. This he continued for nearly a quarter of a century, when, on May 31, 1889, he quietly passed away at his West Grace Street home in Richmond.

"In person, he was," says Lewis,* "above medium stature, well formed, erect and of soldierly bearing; regular, handsome features, not austere but subdued by thought and studious habits. With acquaintances he was genial, having a pleasant brightness, and a keen but harmless wit. In official life a strict disciplinarian, but appreciative of faithful service. He was always extremely modest in referring to his own work and only alluded to it at comparatively long intervals and upon the most intimate occasions. That he spared not himself the best testimony is the high renown he won for himself and his faithful corps with

*Samuel Preston Moore, Surgeon General of the Confederate States. By Samuel E. Lewis, M.D. *Southern Practitioner*, August, 1901.

the medical world, which has justified the wisdom of his selection for the duties imposed upon him; and also by the loving regard felt for him in recognition and appreciation of his services, by all the people of his beloved Southland.'

The portrait with which this sketch is illustrated we owe to the courtesy of Dr. Deering J. Roberts of Nashville, Secretary of the Association of Medical officers of the Army and Navy of the Confederacy and Editor of the *Southern Practitioner*. No portrait of Dr. Moore in uniform as Surgeon General is in existence for the very excellent reason that none was ever made. As a matter of fact he never had such a uniform. He ordered one from England during the earlier days of the War but the privateer which had it on board was sunk by the enemy and he had no opportunity to obtain another.

ARMY MEDICAL CORPS EXAMINATIONS.

PRELIMINARY examinations for appointment of Assistant Surgeons in the Army will be held on May 1st and August 1st, 1905, at points to be hereafter designated. Permission to appear for examination can be obtained upon application to the Surgeon General, U. S. Army, Washington, D. C., from whom full information concerning the examination can be procured. The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to the localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. In order to perfect all necessary arrangements for the examinations of May first, applications must be complete and in possession of the Surgeon General on or before April first, and for the examination of August first, on or before July first. Early attention is therefore enjoined upon all intended applicants. There are at present twenty vacancies in the Medical Corps of the Army.

News of the Services.

Dr. George W. Adair, U.S.A., granted two months leave.

Dr. Everett A. Anderson, U.S.A., ordered from Georgetown, Ky., to the Philippines.

Assistant Surgeon J. W. Backus, U.S.N., ordered to the Portsmouth Naval Hospital and additional duty on the Southery.

Surgeon C. P. Bagg, U.S.N., ordered from the Mare Island Hospital to Guam.

Assistant Surgeon W. H. Baker, U.S.N., ordered from the Brooklyn to the San Juan Naval Hospital.

Surgeon C. H. Barber, U.S.N., ordered from the Newport Naval Training Station to the Ohio.

Assistant Surgeon L. W. Bishop, U.S.N., ordered from the New York Naval Hospital to the New York Navy Yard.

P. A. Surgeon F. M. Bogan, U.S.N., ordered from the Decatur to the Yokohama Naval Hospital for treatment.

Lieutenant Louis Brechemin, Jr., U.S.A., granted thirty days leave.

Dr. Marshall Clinton, of Buffalo, N.Y., has been commissioned Captain and Assistant Surgeon of the 65th Regiment, N.G.N.Y. Captain Clinton, during the Spanish War, was Assistant Surgeon of the 202nd N.Y.V.I.

Surgeon R. P. Crandall, U.S.N., ordered from the New Orleans to waiting orders.

P. A. Surgeon H. C. Curl, U.S.N., ordered from the Isthmian Canal Commission to the Boston.

Lieutenant Colonel William B. Davis, U.S.A., promoted to Lieutenant Colonel, January 19, 1905.

Assistant Surgeon H. A. Dnnn, U.S.N., granted six weeks leave.

Acting Assistant Surgeon B. Elmore, U.S.N., appointed January 24, 1905, and ordered to the Washington Naval Hospital.

Assistant Surgeon C. F. Ely, U.S.N., ordered from the Naval Academy to the Marine Detachment on the Isthmus.

Captain Clyde S. Ford, U.S.A., who is actively engaged upon the subject of a motor ambulance, is ordered from Fort Barrancas to Ormond, Fla., in connection therewith.

Assistant Surgeon Edward Francis, P.H.&M.H.S., granted one month's leave.

Acting Assistant Surgeon A. C. Fraser, P.H.&M.H.S., resigned January 31, 1905.

Assistant Surgeon Wade H. Frost, P.H.&M.H.S., appointed Assistant Surgeon and ordered to Baltimore, Md.

Assistant Surgeon A. J. Geiger, U.S.N., ordered from the Prairie to the Port Royal Naval Station.

Dr. William R. S. George, U.S.A., returned to San Juan, P. R. from detached service at Cayey.

Colonel Alfred C. Girard, U.S.A., granted two month's leave.

Surgeon W. B. Grove, U.S.N., ordered to the Chelsea Naval Hospital.

Surgeon A. G. Grunwell, U.S.N., ordered to the New York Naval Hospital when discharged from treatment there.

Lieutenant Samuel C. Gurney, M.N.G., appointed Assistant Surgeon 1st Michigan Infantry.

P. A. Surgeon J. A. Guthrie, U.S.N., ordered to the Dixie.

P. A. Surgeon M. K. Gwyn, P.H.&M.H.S., granted four months leave.

Medical Director G. E. H. Harmon, U.S.N., promoted from Medical Inspector.

Lieutenant Colonel Julius F. Henkel, Chairman of the Committee of Arrangements for the next meeting of the Association has been promoted from Major of the 1st Infantry Mich. N. G., to Lieutenant Colonel and Brigade Surgeon of the 1st Brigade, Mich. N. G.

Medical Inspector L. C. Henneberger, U.S.N., ordered from the Olympia to waiting orders.

Dr. John M. Hewitt, U.S.A., ordered from Kewanee, Ill., to the Philippines.

Medical Inspector C. T. Hibbett, U.S.N., promoted from Surgeon.

Assistant Surgeon W. E. C. High, U.S.N., ordered from the Midway Islands to the San Francisco Naval Training Station.

Colonel John Van R. Hoff, U.S.A., ex-President of the Association of Military Surgeons, promoted to Colonel, January 19, 1905.

Dr. Thomas G. Holmes, U.S.A., ordered to Fort Sheridan on temporary duty.

Major Vernon J. Hooper, M.N.G., promoted from Captain and Assistant Surgeon to be Surgeon of 1st Michigan Infantry.

Lieutenant George W. Jean, U.S.A., granted two months leave of absence.

Director General Alfred H. Keogh, M.D., C.B., R.A.M.C., has succeeded Sir William Taylor at the head of the Royal Army Medical Corps. General Keogh is under fifty years of age and distinguished for his energy and ability.

Dr. Robert Lemmon, U.S.A., ordered from Fort Terry to Fort Wadsworth on temporary duty.

P. A. Surgeon J. F. Leys, U.S.N. ordered home from Guam.

A. A. Surgeon W. J. Linley, P.H.&M.H.S., granted one month's leave.

Lieutenant William L. Little, U.S.A., ordered from Fort Oglethorpe to Jackson Barracks.

A. A. Surgeon E. F. McConnell, P.H.&M.H.S., granted one month's leave.

Major C. C. McCulloch, Jr., U.S.A., promoted Major, January 19, 1905.

P. A. Surgeon Paul E. McDonnold, U.S.N., ordered to the Washington Naval Dispensary.

Surgeon G. M. Magruder, P.H.&M.H.S., granted one month's extension of sick leave.

Lieutenant George W. Mathews, U.S.A., retired as Captain.

Dr. Marion F. Marvin, U.S.A., granted one month's extension of leave.

Assistant Surgeon G. M. Mayers, U.S.N., ordered to the New York Naval Hospital.

Captain John E. Mead, M.N.G., promoted to Captain from Lieutenant and Assistant Surgeon 1st Michigan Infantry.

Surgeon V. C. B. Means, U.S.N., ordered from the Philadelphia Naval Hospital to the San Francisco Recruiting Station.

Assistant Surgeon J. Miller, Jr., U.S.N., ordered from the Isthmus of Panama to the Boston.

Acting Assistant Surgeon J. A. Moncure, P.H.&M.H.S., granted one month's leave.

Assistant Surgeon Eugene H. Mullan, P.H.&M.H.S., appointed Assistant Surgeon and ordered to Stapleton.

Assistant Surgeon F. M. Munson, U.S.N., ordered from Olongapo to Guam.

Dr. Francis S. Nash, U.S.A., granted four months leave.

P. A. Surgeon, H. E. Odell, U.S.N., ordered to the New York Naval Hospital.

Dr. Joseph A. O'Neill, U.S.A., was killed in action at San Francisco de Malabon, Philippine Islands, during an attack of ladrones, January 24, 1905.

Major William O. Owen, U.S.A., ordered from Fort Logan to the Presidio General Hospital for treatment.

P. A. Surgeon R. W. Plummer, U.S.N., ordered to the Charleston Navy Yard.

P. A. Surgeon T. F. Richardson, P.H.&M.H.S., ordered to temporary duty at the Savannah Quarantine.

Dr. Frederick W. Richardson, U.S.A., died at Ligao, Albay, Philippine Islands, January 26, 1905, of accidental wood alcohol poisoning. Dr. Richardson was an Active Member of the Association of Military Surgeons.

Medical Director John W. Ross, U.S.N., detached from duty under the Isthmian Canal Commission.

Dr. Joseph L. Sanford, U.S.A., ordered from Clifton, Va., to the Philippines.

Lieutenant Robert Smart, U.S.A., transfer from Fort Dupont to Fort Sheridan revoked and assigned to duty at Fort Myer.

Surgeon R. K. Smith, U.S.N., resignation accepted to take effect February 28.

Surgeon John M. Steele, U.S.N., ordered from the Colorado to the Olympia.

Assistant Surgeon Jacob Stepp, U.S.N., ordered to the Constellation and the Newport Naval Training Station.

Dr. J. L. Taylor, U.S.N., appointed Assistant Surgeon U.S. Navy.

Lieutenant Henry D. Thomason, U.S.A., ordered for examination for promotion.

Acting Assistant Surgeon F. W. Tyree, U.S.N., ordered from the Charlestown Navy Yard to Midway Island.

Surgeon L. L. Von Wedekind, U.S.N., ordered to the Newport Naval Training Station with additional duty on the Constellation.

Major George M. Wells, U.S.A., ordered home from the Philippines, February 11, 1905

Medical Director Howard Wells, U.S.N., promoted from Medical Inspector.

Lieutenant Robert N. Winn, U.S.A., ordered for examination for promotion.

P. A. Surgeon R. B. Williams, U.S.N., ordered from the Norfolk Naval Hospital to the West Virginia.

Surgeon G. B. Wilson, U.S.N., ordered from the Chelsea Naval Hospital to the Colorado.

Captain James S. Wilson, U.S.A., ordered from Fort Myer to Fort Oglethorpe.

P. A. Surgeon R. L. Wilson, P.H.&M.H.S., granted one month's leave.

Dr. Stephen Wythe, U.S.A., ordered to Fort Baker, Cal.

DELEGATES TO THE XV INTERNATIONAL MEDICAL CONGRESS AT LISBON.—Members of the Association of Military Surgeons contemplating attendance upon the Lisbon International Medical Congress, and desiring to be appointed as delegates, are requested to make early application to the Secretary for credentials.

COMPARISON OF THE MEDICAL DEPARTMENTS OF THE AMERICAN AND JAPANESE ARMIES.—The *Baltimore Sun* in an exceedingly strong editorial remarks that, "We have here in the United States the men of training, skill, courage and professional zeal to form an Army Medical Corps unsurpassed in the world, but we lack the intelligence to understand that to be efficient from first to last in war it must be organized, trained and maintained in time of peace. That is in realty the only lesson with regard to medical service that we have to learn from Japan. When we have taken it to heart we can duplicate her finest achievements and probably surpass them."

THE AMERICAN NATIONAL RED CROSS.—At the first meeting of the American National Red Cross, under the new charter recently granted it by Congress, the following officers were elected: *President*, Secretary of War William H. Taft; *Treasurer*, Assistant Secretary of the Treasury C. H. Keep; *Counsellor*, Assistant Attorney General Louis Pratt; *Secretary*, Charles L. McGee; *Executive Committee*, Assistant Secretary of State Francis B. Loomis; Brigadier General George B. Davis, U.S.A.; Medical Director

John C. Boyd, U.S.N.; Chief of the Bureau of Corporations; James R. Garfield; Ex-Secretary of the Navy; Hilary A. Herbert; Miss Mabel Boardman and Surgeon General Walter Wyman, P.H.&M.H.S. Plans for reorganization and development of the work were discussed and the formation of the state societies provided for in the Act of Incorporation was considered. It will be observed that the Medical Department of the Army is not represented, a singular situation in view of the prominence of the military surgeons of other countries in similar organizations.

THE ARMY MEDICAL REORGANIZATION BILL IN THE HOUSE.—The Military Committee of the House reported on February 16th the Army Medical Reorganization Bill with some modifications, and it is probable that the Bill will pass the House in this form. The number of officers in the several grades is reduced from 16 Colonels, 24 Lieutenant Colonels and 110 Majors, to 12 Colonels, 18 Lieutenant Colonels and 85 Majors; the number of Captains and Lieutenants remains at 300 as originally provided. The wording of the Bill is changed to provide that these officers shall have the rank, pay and allowances "as now provided by law" instead of "corresponding grades in the Cavalry arm of the Service." The period of service as First Lieutenant is made five years instead of three, and the provision for examinations for promotion for officers above the grade of Major is omitted, while it is provided that any officer of the Medical Reserve Corps who declines duty when called to the colors shall be honorably discharged. It is more than likely that some of these provisions will be changed when the Bill passes the House and goes to conference. The Bill, as finally passed, will be published in the JOURNAL in full.

THE RUSSIAN ARMY MEDICAL SERVICE IN MANCHURIA.—In an interesting article in the *Outlook*, George Kennan presents a series of quotations from observers of the situation in Manchuria, all of which are agreed as to the disorganization existing there. Mr. Demchinski, a prominent Russian publicist, remarks concerning a so-called "sanitary train without special appliances," which he saw in Manchuria, that it had been en route with 868 sick and wounded men for three days, during which time the sick had had nothing to eat, no place for cooking being provided. From that time the train was still eighteen hours in reaching its destination where it arrived at midnight when it was impossible to unload or feed the sick. In order to accommodate the 868 men they had to be put on "nares" or platforms, in two tiers, one above the other. There was not a single medical man, attendant or nurse on the train. When the patients from the upper berths rolled down upon those in the lower, as frequently occurred, there was no one to put them back in their places. In two of the cars there were forty-eight typhoid fever patients, and when the conductor asked the authorities for at least one attendant to care for them because of their tossing about in delirium and often trying to throw themselves out of the train when in motion, the request was denied. The statements of still other observers report that the corruption in connection with the funds for the care of the sick and wounded is indescribable, that the handling of the wounded is managed with shocking carelessness and haste, and that the means of identification are deficient and defective in the extreme.

Current Literature.

ANEMIA IN PORTO RICO.*

THIS report, which consists of two books, one in English and one in Spanish, but bound in the same cover, is a complete account of the research of the Porto Rican official commission which has been making extensive studies into ankylostomiasis or uncinariasis, and presents a careful and complete study of the subject comprising the history, the etiology, the symptomatology, the pathology, the course, progress and lethality, the diagnosis, the prophylaxis and the treatment, each of which is discussed in much detail.

VON BERGMANN'S SURGERY.†

THE fifth and the final volume of this system of surgery has been published and is ready for delivery. It describes the surgery of the pelvis and genito-urinary organs. The same excellence that has been shown in the previous volumes is found in this one, except that the surgery of the prostate has received scant attention, and does not conform to the present knowledge on this subject. The other articles will be found very satisfactory to the reader. We congratulate the editors and publishers on their success, and yield to them great praise in presenting to American surgeons, a work so valuable and filling a place so long vacant.

A. R. ALLEN.

*Report of the Commission for the Study and Treatment of "Anemia" in Porto Rico. Authorized by Act of the Legislative Assembly. Official document, in English and Spanish. By Captain BAILEY K. ASHFORD, U.S.A., P. A. Surgeon W. W. KING, P.H.&M.H.S., and Dr. P. G. IGARAVIDEZ. 8vo.; pp. 321. San Juan, Government Printing Office, 1904.

†Von Bergmann's Surgery. A System of Practical Surgery. Drs. E. VON BERGMANN, of Berlin, P. VON BRUNS, of Tübingen, and J. VON MUKULICZ, of Breslau. Edited by WILLIAM T. BULL, M.D., of New York. Complete work in five imperial octavo volumes, containing 4220 pages, 1976 engravings and 102 full page plates in colors and monochrome. Volume V. 789 pages, 354 engravings, 23 plates. Philadelphia and New York. Lea Brothers & Co., 1904.

THE BARTON FIRST AID TEXT BOOK.*

THIS little book is an indication of the activity of first aid work in Boston and it is to be heartily welcomed to the number of means of instruction in the important subject of which it treats. It is brief and succinct, easily carried in the pocket, and by its simplicity and accuracy commends itself to the use of the laity for whom it is designed.

A MEDICAL NOVEL.†

THIS successful essay in the field of fiction by Prof. Samuel Walter Kelley of Cleveland, Ohio, who achieved a most excellent record as Major and Brigade Surgeon during the Spanish-American war, and whose professional, editorial and literary work is well known, is worthy of especial remark. Major Kelley's style is readable and attractive. His diction is pure and clean and it goes without saying that the references to medical and pathological conditions in the book are correct as is rarely the case in modern fiction. We congratulate Major Kelley upon his success and trust that the work will have the extensive sale which its genuine merit really deserves.

A LABORATORY MANUAL OF HUMAN ANATOMY‡

THE Laboratory Manual now displaces the Dissectors' Handbooks of previous days as the anatomical laboratory, with its many departments, has displaced the malodorous and ill kept dissecting room of former years. The work of Prof. Barker is a distinct advance upon any treatise of the kind that has yet come under the writer's notice. It is remarkable for its clearness and distinctness. It is not too full nor is it too scant, but it seems to clearly fulfill its function as an accessory and adjunct to the larger text-books to which the student must devote himself in order to become fully acquainted with the structure and functions of the human body.

**The Barton First Aid Text Book.* A Manual for the Student in First Aid. By Lieutenant H. H. HARTUNG. Arranged and illustrated by ROSCOE G. WELLS. 16mo.; pp. 82., with twelve illustrations. Boston, The New England First Aid Association, 1904.

†*In the Year 1800.* Being the relation of sundry events occurring in the life of Doctor Jonathan Brush during that year. By SAMUEL WALTER KELLEY, M.D. 8vo.; pp. 421 with 4 plates. Being Volume 3 of the *Doctor's Recreation Series*. Akron, Ohio. The Saalfeld Publishing Co., 1904.

‡*A Laboratory Manual of Human Anatomy.* By LEWELLYS F. BARKER, M.B. 8vo.; pp. 583. With numerous illustrations in black and colors; Philadelphia and London, J. B. Lippincott Co., 1904.

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

THE PROPOSED MEDICAL RESERVE CORPS FOR THE ARMY vs. MAJOR AZEL AMES' OPINIONS.

BY MAJOR WILLIAM C. BORDEN.
SURGEON IN THE UNITED STATES ARMY.

IN the February number of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS, a paper was published entitled "A Medical Reserve Corps for the Army of the United States," by Major Azel Ames.

In this paper there are statements which directly arraign the motives and actions of the Surgeon General of the Army and of the Regular Medical Department. These statements are such that they would not be worthy of attention were it not for the fact that they appeared in the official organ of the Association, and for this reason might mislead members of the Association, who are not fully informed as to the purpose and intent of the Bill for the Reorganization of the Medical Department of the Army, now before Congress, known as Senate Bill 4838, and House Bill 13998.

The statements made by Major Ames and which the writer directly calls in question, quoted from his article, are as follows:

"The avowed desire and purpose of the Surgeon General to * * * is such painful *reassertion** of the old-time self-sufficiency and autocracy of the War Office and its Medical Department * * * "as has been so *regrettable**, *offensive**, and *injurious** in the past."

"* * * to *deliberately create** a body of *inferiors** (The Medical Reserve Corps) to perform subordinate labors, and to

Italics the writer's.

*designedly** keep that body ignorant of other duties that a select few may retain command, savors intolerably of stigma and servitude."

"It is *proposed** to *keep* him (The Medical Reserve Officer) ignorant of what it is conceded he ought to know, and *because he is so*, to *deprive him** of the "authority, rights and privileges" of a medical officer of his rank (which the bill expressly says shall be his) and to utilize only certain abilities he is *presumed** to possess."

"It is an open *declaration*, that it is the *desire** and *purpose** * * * to kindly assign to the Assistant Surgeons of the proposed Reserve Corps * * * *only* the *professional* duties incident to the care of the sick and wounded, and to limit them to a service which, in the intent and manner of its assignment, would be grossly invidious, and practically would be servitude, *if it were practicable*." *

"We are informed too, that the Army Medical School, though created by the People, paid for by the People, and designed for the instruction of the Medical Officers of the Army of the People, will not be utilized for the education and benefit of any save *a few chosen servants of the People who hereby assume to say** what their masters, the People, shall do with their own."

"* * * the bill tells, all too plainly, of *broken faith**, lowered standards, the desertion of high and broad ideas and great opportunities, to less worthy, narrow and *personal considerations**, and breathes anew the old typical, dominant spirit of Bureaucratic, dogmatic *self-seeking** and self-assertion."

"* * * this Bill, though doubtless unfailingly just and liberal to the regular army medical staff, its needs and desires, and carrying the approval of the Secretaries—*according to the lights lent them by those interested**—sadly fails in the presence of the first great opportunity * * *."

These statements directly or inferentially charge the Surgeon General of the Army, and certain members of the regular Medical Department, not named, with

- 1 Broken faith.
2. Self-seeking.

*Italics the writer's.

3. With misleading the Secretaries of War.
4. With deliberate intent to degrade certain members of the medical profession.
5. With deliberate intent to evade and not comply with the law of the land.

One "needs to take a long breath" after these most extraordinary statements, statements which ascribe questionable motives and actions to a Department of the Government which has given to the country and the Medical Profession the work of Beaumont, Letterman, Otis, Woodward, Billings, Sternberg and Reed, as well as the unfailing patriotism and labor for the public good of hundreds of others, who, while not so well known to fame, have always worked faithfully and conscientiously for the advancement of medical science and their country's welfare.

Certainly such statements should neither be made by a member of the Association nor published in its official journal unless supported by *undoubted proof*.

But upon what are these extraordinary statements based? Only upon the following facts and *Major Ames' deductions* therefrom.

1. That the proposed Bill does not provide for the *general* education of the officers of the Reserve Corps.
2. That the Reserve Corps is not limited in numbers, or apportioned among the different States, or Congressional Districts.
3. Last, but not least, that the suggestions offered by Major Ames when the Bill was being framed were not accepted in toto and incorporated in the Bill.

In order to make the matter perfectly clear, the *real intent and purpose* of the proposed legislation to establish a Reserve Corps, must be understood.

The Bill will, if it becomes a law, accomplish the following purposes: First; it will make what is now known as the "Contract Surgeon," a commissioned officer, with the rank of first Lieutenant, Medical Reserve Corps U.S. Army, and *will* give him while on duty in the service of the United States, the authority, rights and privileges of a commissioned officer. Second; It will allow the Surgeon General to select these officers by careful

examination before their services are actually required. Third: It provides a way by which Medical Reserve Officers who desire to enter the permanent establishment may be educated and promoted.

In fact the MEDICAL RESERVE OFFICER, if the bill becomes law, will be AN ADDITIONAL FIRST LIEUTENANT in the regular establishment for service only when needed, carefully selected by examination as the permanent officers are now selected, simply this, nothing MORE and nothing LESS.

The great complaint made by the Contract Surgeons themselves and by the Medical Department, has been that a civilian employee without rank cannot adequately do the duties required of a commissioned officer. *The Contract Surgeons have never claimed, nor has the Medical Department ever asserted that all of these temporary members of the regular Medical Department should be trained in the technical duties of medical officers.*

The Bill, as written, gives the "Contract Surgeons" the commission which they have rightly desired, and not only gives it to them while they are in active service, but actually continues it when they return to their homes, so that they are still connected with the Medical Department, form an eligible reserve list, and carry with them to their homes their commissions as evidence that they held an honorable position while they were in the service. The Bill *gives* MORE than the Contract Surgeons themselves have ever asked. Where then, the "broken faith," which Major Ames alleges, and with whom?

But Major Ames thinks that the Bill should have contained a proviso for the education of the Reserve Corps Medical Officers in the duties of the medical officer, either by correspondence or other method, and *erroneously* states "the Bill in question contains no provision for *any* instruction for the proposed corps."

Whether or not *all* (all is emphasized for the reason that the Bill provides for the education of some, Major Ames to the contrary, notwithstanding) the Reserve Medical Officers should be educated in the duties of medical officers, and whether or not a practicable scheme of education for them could be devised, a

scheme which would meet both their approval and that of Congress, is a question plainly open to debate.

Major Ames claims that the Medical Department has receded from its former position that medical officers should be educated in administrative duties. He quotes from a paper read by the writer at Boston, in 1903, in which the education of the officers of the *Medical Department and the National Guard at the Army Medical School was urged*.

This Major Ames then opposed, but has since become law. The writer did not urge the education of *all* National Guard Officers, much less that of all officers of the Reserve Corps, which corps was then not even dreamed of.

While admitting that if all Medical Reserve Officers could be educated in the technical duties of medical officers this condition would be ideal, practically, the problem of education of these officers presents certain difficulties which are plainly evident and group themselves as follows:

1. The education must be: (a) compulsory, or (b) voluntary.
2. The question of expense must be considered.
3. The necessity for such technical knowledge must be shown.

If the education is to be compulsory, then the spending of time in study, and the passing of certain examinations upon the special subjects pertaining to administrative work must be required of each Medical Reserve Officer, whether or not the officer ever goes on active service.

Personally, I believe, and I think my belief is shared by others, that it would be almost, if not entirely, impossible, to obtain a sufficient number of Reserve Officers if this technical education and examination were compulsory.

The Medical Reserve Officer is for temporary service and few professional men would care to spend the time required for study of the technical duties required of a medical officer unless they intended to enter the permanent establishment or were sure of long continued service. The case is entirely different with the permanent regular officer and the officer of the Militia, both of whom have incentive for such study through necessity for its practical application.

On the other hand, if the education was voluntary, and only such Medical Reserve Officers were educated as expressed desire so to be, the matter of education would depend entirely upon the caprice of the individual. Many would be uneducated, and with many chances that the particular officers educated would never be called into service.

As a matter of fact, it must be remembered that Officers of the Medical Reserve Corps replace the "Contract Surgeons," and are simply adjuncts to the regular Medical Corps. They have the rank of 1st Lieutenant and will do the work of 1st Lieutenants, the same work which is done by 1st Lieutenants, of the Regular Medical Department. This work is almost, if not entirely, concerned with the care of the sick and wounded, and the preservation of the health of the Army,—the work for which the Medical Department of the Army has been created.

It has been reserved for Major Ames to be the first to say that, however assigned, the care of the sick and wounded "would degrade and humiliate," and that the doing only of professional work, 'practically would be servitude!'"

The first Lieutenants of the Medical Department do this work; Why then should not the First Lieutenants of the Reserve Corps?

Is it true, as Major Ames states, that the care of the sick and wounded would degrade and humiliate the Medical Reserve Officer, and if so, would his degradation and humiliation be any greater than that of the First Lieutenant of the Medical Corps?

But Major Ames makes the astounding statement; "It is proposed to *keep him ignorant* of what it is conceded he ought to know, and *because he is so*, to deprive him of the "authority, rights, and privileges" of a medical officer of his rank.

It has not been the experience of the writer that men can be kept ignorant unless they desire to remain so. Also, if any member of the Reserve Corps desires to enter the Regular service and so rise to administrative grades, the law provides definitely a way by which he can so do.

Further, *the Bill actually provides for the education of the Reserve Officers*—a, practical; b, at the Army Medical School.

If the Medical Reserve Officer is, by operation of the law, called to active duty he will receive *practical* education in the duties required of him, and the lines of promotion, by passing the examination for entrance to the regular corps will be open to him.

Also, the law itself specifically provides "that Officers of the Medical Reserve Corps who apply for appointment to the Medical Corps of the Army may, upon the recommendation of the Surgeon General, may be placed on active duty by the Secretary of War and ordered to the Army Medical School for instruction and further examination to determine their fitness for commission in the Medical Corps." Thus *there is provision in the Bill for instruction of such Reserve Officers as desire to permanently remain in the service*, a fact which *Major Ames has not mentioned*.

But Major Ames states: "We are informed too, that the Army Medical School, though created by the People, paid for by the People, and designed for the instruction of the Medical Officers of the Army of the People, will *not* be utilized for the education and benefit of any save a few chosen servants of the People who hereby assume to say what their masters, the People, shall do with their own."

A more astonishing statement could not be made, nor one which could show more absolutely the ignorance of Major Ames in regard to the matter which he discusses. The *law* now in existence allows the Army Medical School to be used only for the education of Officers of the Regular Medical Department and Officers of the Organized Militia of the various States. Both Officers of the Regular Medical Department and Officers of the Organized Militia of different States are *now* being educated in the Army Medical School.

Does Major Ames suppose that the School can be used for other purposes than those authorized by law? Does he suppose that the Surgeon General of the Army or the Secretary of War would countenance such use? Or is he carried away by the exuberance of his style and his desire to paraphrase in sounding periods the familiar utterance of a great statesman?

But while the Bill provides for educating certain of the Reserve Officers, there are difficulties, both practical and financial.

in the way of the general education of the Medical Reserve Corps. The Regular Medical Department, even after the increase as proposed in the Bill under consideration, will not be sufficiently large to do all the duties required of it. If the entire Medical Reserve Corps is to be educated—even by the correspondence system, additional work will be required of the Medical Corps, which would necessitate a still further increase in its numbers, while the work of education itself would necessitate an increase in appropriations. If now, the Medical Department is "self-seeking," as Major Ames asserts, it might well have urged the general education of the Reserve Corps, and have recommended a still higher increase in their own number, using the necessity for the detail of more Regular Medical Officers as instructors as a reason for the increase.

Individuals, even in Congress assembled, are rarely willing to pay out money except for good cause. Would the cost of the education of the entire Reserve Corps in administrative duties compensate for the possibly increased benefit to the service which certain of these officers would render when called into active duty? Personally, I believe that an affirmative answer cannot be given, and I am doubtful if Congress would look with favor upon such a sweeping educational scheme and its attending additional expense, when the benefits to be derived are so disproportionately small.

Effective education of medical men in the technical administrative duties of medical officers by the correspondence system is most doubtful.

A recent writer has said that while correspondence instruction is better than no instruction at all, this is probably the best that can be said of it. In addition, Major Ames says "Its (the Army Medical School's) curriculum would be a *limited** one * *."

A combination of correspondence system and limited curriculum would certainly be far from ideal.

Possibly a medical man instructed in the technical duties of a medical officer by the correspondence system would be better

*It allies the writer.

than one entirely uninstructed, but it is doubtful if the little knowledge so gained would *materially* increase his efficiency.

As to a limited or unlimited Reserve Corps; Major Ames states: "A body of such alarming possibilities as to size, pervasiveness, opportunity and activity in the political or personal interests of its chief, or for those whom he might invoke its allegiance and labors * * *."

"Such a power as that proposed, lodged in the hands of a Bureau Chief of the War Department, is greater than that vested in the President of the United States, and *might* be used with tremendous effect, for ends wholly foreign to its true purpose."

"* * * the control of these unlimited opportunities by a single official without any legal check upon him * * is repugnant to safe and established policy."

Also, all these dangers are to arise from a body of men, whose individual members, according to Major Ames, are to be kept ignorant, deprived of the authority, rights and privileges which law says they shall have, degraded and humiliated, and limited to a service, which in the intent and manner of its assignment, would be grossly invidious, and practically would be servitude!

Really a most alarming array of possibilities *if true!*

Against all this Major Ames would array himself "while life and reason last!"

Major Ames sees a deep-laid scheme against the Medical Profession and the country. He sees an imaginary danger and fires his guns, charged not with the solid shot of argument but with the blank cartridges of personal, unsupported opinion, denunciation and borrowed oratorical phraseology at his personally created phantom and fantastic foe.

What are the real facts?

Up to the present time the medical profession as a whole has been practically the Medical Reserve Corps. From the general medical profession the Contract Surgeons are selected by the Surgeon General upon such examination as he may direct. The number of men from whom the Contract Surgeons are selected for active service is unlimited, and there has been no re-

striction as to the location, State, or district from which selections could be made. The Medical Reserve Officer when not on active duty is simply a civil practitioner with a commission, which is entirely inoperative and only shows that he is on the eligible list for selection for duty if his services are required and he is willing to give such service. *The Surgeon General and no other official, or combination of officials*, has any control over these men whatever. When they do come into active service they come only in such numbers as are actually required, and then not under the control of any single official but subject to the rules and regulations governing all commissioned officers of the Army.

Major Ames further contends that the Reserve Corps should be selected not after examination by the Surgeon General, but by the Surgeon General in conjunction with the several state military medical chiefs and Members of Congress. Why this should be so it is difficult to say. The Contract Surgeons and the Officers of the Medical Department are not now so selected. The Medical Reserve Officer replaces the Contract Surgeon and is an adjunct to the Regular Medical Department. It has never been contended that candidates for the Regular Medical Department should be examined and their qualifications passed upon by any other than a board appointed by the Surgeon General. The officers of the Medical Department work directly under the Surgeon General and it is only just and right that he should choose such men as by examination show that they are capable of performing the duties which may be required of them. If examined and passed upon by others, the Surgeon General cannot be held responsible for their efficiency. The same holds for the Medical Reserve Officer, who is, as before stated, an adjunct to the Regular Medical Department—an additional first lieutenant. If his examination and selection are controlled by others than the Surgeon General, the Surgeon General cannot properly be held responsible for his efficiency.

In regard to the question of limit for the Reserve Corps, there are reasons why the non-active Reserve Corps should not be limited. It is from the younger men on the non-active eligible

list that the active members must be selected. There must be enough men on the non-active list so that a sufficient number of men willing to do active duty can be obtained at a moment's notice when required. Also, new men must be constantly added to the reserve list so that as the older men form fixed ties enough young, unattached men will be available for service.

As to the distribution of these officers by State or district, and their appointment through Congressional or other recommendation, the permanent officers of the Medical Department have never been so selected, then why should the additional first lieutenants? Professional attainment, entirely independent of political or other influence, has been the *sine qua non* for appointment in the Medical Corps.

In fact, if as Major Ames recommends, the Reserve Officers were appointed by political or other influential assistance a body of officers so formed might be made a much more powerful political machine than officers selected for professional attainments only.

The Medical Reserve Officers being officers by right of professional attainment, could never be organized into a body which could be a menace. The very idea is absurd, and the more so, when coupled with Major Ames' assertion that the Corps would be a designedly created body of inferiors.

Does Major Ames really think that such a body could be formed from the Medical Profession in the United States and then used as a tool?

The last reason for Major Ames' remarkable statements now remains to be discussed; the fact that his suggestions were not taken and submitted to Congress in place of the Bill now before that body.

One cannot but believe that if Major Ames thinks that his opinions alone should be embodied in a Bill for the Reorganization of the Medical Department of the Army, he certainly shows a degree of "self-sufficiency," fully equal to that with which he has charged the Officers of the Medical Department. As a matter of fact Major Ames is only one of many whose opinions were received and discussed. The final outcome of the whole discussion

was the Bill now before Congress, a Bill which has received the unqualified support of the President of the American Medical Association, the Committee on Legislation of that Association; over 2,000 medical societies connected therewith, the support of the General Staff, the Chief of Staff of the Army, two Secretaries of War, and the Senate and President of the United States. It remained for Major Ames to find such alarming possibilities of danger to the country, such "self-seeking," "self-sufficiency," "autocracy," and such an "attempt to degrade and subordinate the members of the Medical Profession," as he claims to have found, and to bravely array himself against such high endorsement, single-handed flinging not argument but denunciation in ringing phrases, some of which have a most familiar sound.

But while challenging the Major's attitude and utterances, one can not but admire his valor in so arraying himself, and his extraordinary acumen as well.

The trained legal minds of Secretary Root and Secretary Taft failed to see the dangers to the country, the "self-seeking," "the subordination of high and broad ideas and great opportunities, to less worthy, narrow and personal consideration" concealed within the proposed bill. Perhaps their eyes were dazzled and their mental vision obscured by "the lights lent them by those interested;" so to Major Ames the credit must be ascribed of clearly discerning what these minds of known legal acumen failed to observe. Not only this, but he, and he alone, detected all those deep-laid plans to degrade a deluded medical profession, to elevate the Surgeon General with Czar-like sway above a legion of cowed, medical menials, ignorant and kept ignorant,—plans which had escaped the duller intellects of the President of the American Medical Association, its committee on legislation, the Senate, and the President of the United States! But Major Ames *saw*, saw as clearly as did the Baltic Squadron, the torpedo boats so skillfully hidden in the North Sea fishing fleet!

Major Ames further states that "*the** general outline for a Medical Reserve Corps of the Army, * * * was submitted

*Italics the writer's.

by the writer in October last, to Major Borden of the Army, who greatly improved it by suggesting that members of such Corps be given ab initio the commission of assistant surgeon * * * .” Major Ames also says his “original outline, which comprised * * * a Medical Reserve Corps * * * .” Thus Major Ames specifically or inferentially claims the authorship of this feature of the Bill.

Even in this, issue must be taken with Major Ames. The Major did NOT originate the Medical Reserve Corps feature of the Bill, nor did he give any expression of having such original idea until *after* he had received one of the first rough copies of the Bill, which copy contained the Medical Reserve Corps feature and title. The term “Medical Reserve Corps” or proposition for such corps was not submitted by Major Ames, either verbally or in writing, until after he had received the Bill for the Reorganization of the Medical Department of the Army, above referred to. In fact, the only idea presented by Major Ames previous to his receipt of this original draft was that some legislation should be enacted which would give the rank of “Medical Cadet” to the “Contract Surgeon.”

We are sorry to have to take direct issue with Major Ames in this matter, but *he is certainly mistaken, and cannot be credited with originating or suggesting the Medical Reserve Corps* feature of the Bill.

Finally, the honor of having originated the Medical Reserve Corps idea being denied Major Ames, there remains for him only the distinction of having called in question, in no uncertain terms, the motives and actions of the Surgeon General and the Medical Department of the Army, and of having arrayed himself against an honest attempt to make the “Contract Surgeon” a commissioned officer, and, more than this, an actual member of the Regular Medical Department of the Army of the United States, with all the rights and privileges which the permanent officer has, including opportunity for education and promotion.

In providing for the accomplishment of this purpose all the pros and cons relative to a Medical Reserve Corps limited only

*Italics the writer.

by the professional attainments of its members rather than limited and distributed by Congressional Districts, and the arguments for and against provision for educating the entire Corps were fully discussed. The arguments, criticisms and opinions not only of members of the Medical Department, of the General Staff, but of many members of the medical profession in civil life were welcomed and heard. The preponderance of opinion was in favor of a reserve corps, constituted as in the Bill finally submitted. The Bill is not, therefore, an expression of self-seeking and self-assertion on the part of the Surgeon General, the Medical Department, or the War Office.

The Medical Department of the Army is composed of members of the Medical Profession. That Major Ames in presenting his views should have arraigned the motives and actions of these members of a profession, to which he has the honor to belong, is it is thought, regrettable rather than warranted or convincing.

MARCH-SWELLING AND FRACTURE OF BONES OF THE FEET.

A POSITION contrary to the opinion current latterly that fracture of the bones of the feet is the most frequent cause of march-swelling and "footoedema" is taken by Dr. Fr. Klefberg in a recent number of the *Tidskrift i Militar Hälsovård*. While admitting that such fractures are relatively frequent among soldiers and that they may produce a swelling of the foot, he insists that they are due, as a rule, to trauma; whereas, march-swelling, as the name implies, only occurs as a result of a severe march without trauma. The shuttle-like thickenings of the bones of the feet in march-swelling, as seen by X-Rays, which have been taken to be callus formations after fracture, the author thinks to be due rather to ossification supervening upon periostitis, and finally he objects to the confusion of "footoedema" and "march-swelling" which he believes to have quite different significations.—HANS DAAR.

IS THE COMMON HOUSE FLY A FACTOR IN THE SPREAD OF TUBERCULOSIS.

By J. O. COBB, M.D.

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SURGEON IN THE UNITED STATES PUBLIC HEALTH
AND MARINE HOSPITAL SERVICE.

THE most fascinating study before the medical profession today is the method and manner by which the infectious and contagious diseases are carried from one person to another. Especially interesting is the study of the many, (seemingly) possible methods by which tuberculosis may spread. To reach back into the past only a few years, certainly in the memory of most of us here, is to recall the various phases through which our minds have passed in this short time. Most of the ideas concerning tuberculosis twenty years ago were crude and ill-grounded. We were ready to believe anything from anybody whether it bore the stamp of reason or absurdity. We clung to hereditary transmission—haven't let go yet for that matter—until the subject grew wearisome. Then it was that bad air was said to be all about us wafting the deadly bacillus to all alike, the rich, the poor. But that did not answer satisfactorily to those who thought, for they pointed the ever accusing finger to the homes of the poor, to the environment of squalor, and said, "There is where most of your cases are." A generally infected atmosphere was untenable, but the lowered vitality man came forward to claim that it was poor food, poor housing, and such things that so lowered the standard of resistance in the poor that the infection being in the air generally, here, there, everywhere, that they were the ones therefore to succumb and contract the disease. Back there somewhere, somebody suggested that the disease was transferred from the cow to man by means of infected milk and every one of us to a man believed it without question

and many still believe it. There were other theories brought forward from time to time—all to be held to firmly until the next came to view.

While we laugh at some of these notions, nevertheless the subtlety with which tuberculosis creeps upon its victims makes the average physician over anxious to know how to combat it and too eager to accept mere conjectures and immature theories. And yet we must advance, certainly when the old is found to be wrong, in part, or in whole.

The old ideas respecting the methods of spread of tuberculosis were partly wrong, if not wholly so. Many of our present day theories are vitally wrong. For that reason I have turned about from time to time, first to one side, then to another, forwards and backwards, seeking to come face to face with some fact that would help me work out by pure reasoning from the intangible surrounding us, how the insidious tubercle bacillus changes its habitat from one man's lungs to another man's lungs. One theory after another has been gone over and discarded as unworthy of belief or of minor or remote importance.

Today most of the great investigators feel, without being able to prove it, that the infection gains the circulation from some portion of the alimentary tract, the bacillus being screened out in the lungs. Many of these men believe that the chief portal of entry is through the tonsil; but whether through the tonsil or intestinal tract, nearly all of them hold that the bacillus is brought to the gateways of our circulation by means of infected food.

In one respect all medical men agree and that is that tuberculosis is a filth disease, most commonly found in filthy homes. Because of this fact many of us have been misled into attributing the cause of tuberculosis, or to put it in the language of today, the predisposition to tuberculosis, to bad air and all the bads that go with squalor and filth. Poverty and bad air are only incidents in the course of the disease and have nothing whatsoever to do with its transmission. In like manner bad air and miasms have no importance from the standpoint of the transmission of typhoid fever, malaria or cholera. And yet not one of you lays

the importance of bad air to typhoid fever that you did twenty years ago. As for malaria one can live indefinitely in good health in so called miasmatic swamps if free from the mosquito. In fact you pay little attention to bad air now except in a general sanitary way. Why? Simply because you have learned that, in typhoid fever if you keep the water supply sterile and keep the flies away from the dejecta the disease will not spread. It's a plain, simple laboratory example of keeping the contagion away from the medium. Bad air has nothing to do with causing the disease whatsoever, only having remote bearing on its outcome when once it has gained a foothold.

Now do you believe that bad air, and poor homes and worse food have anything whatsoever to do with causing tuberculosis? Yes, probably everyone of you, without exception, hold it to be the chiefest cause. You will hold on to this foible just as we used to hold to that nonsense about sewer gas causing typhoid fever. Do you remember what a craze there was about sewer gas and how the faulty plumbing was being torn out to prevent the spread of the disease? Now I believe that this idea about bad air and tuberculosis is just as groundless of reason as that. It seems plain that the matter of dosage and the person being in the constant presence of the contagion are the essential questions for us to look to and work out.

Assuming the postulates that inhalation plays an unimportant role; that infected food is the prime medium; disregarding infected milk as a factor as I feel that we are justified in doing, causes the natural inquiry, what then is the medium of infection to man? And if it is infected food what is the process of infection and how does the infection reach the vital portions of our bodies?

The mental steps in reasoning out the method of spread of tuberculosis is ever like the tides. By this method of investigation we have gained on the foe under conditions where pure experimental investigations have failed. It is only by a trying out process that we can run down this disease and I would revive a discarded theory by a backward swing of the pendulum.

Is then the common house fly a factor in the spread of tuberculosis?

If the disease does gain entrance to our circulation through the intestinal tract then the fly is an important factor because this insect undoubtedly plants millions of bacteria and tubercle bacilli upon exposed food in the filthy portions of cities. I have demonstrated that the fly conveys the bacillus and Spillman and Haushalter called attention to this possibility several years ago. Hoffman fed flies with sputum and recovered the tubercle bacillus from their fecal matter. More recently Hayward of Detroit, has reported a number of experiments which have covered more closely all that has previously been reported by Hoffman.

It is proved that the fly can convey tubercle bacilli on its feet and wings and that it feasts upon tuberculous sputum with the greatest avidity strangely enough to be followed by diarrhoea, as Hayward has observed. This investigator has also showed that smears from the stomachs of flies that have fed upon tuberculous sputum contain virulent bacilli. Both he and Hoffman have proved that the virulency of the bacillus is unaltered by passage through the intestinal tract of the fly. That a fly can carry large quantities of sputum to considerable distances upon its feet, wings and body all of us know to be possible and I know to be true. We are positive that the fly does carry sputum on its feet and wings and in its stomach to food; there to be deposited by actual contact or by dejecta. Granting this as I believe all of you must brings us squarely to the question at issue.

Here again you will ask me to explain how the bacillus reaches the lungs if taken in by the way of the intestinal tract. And still again you will ask me, why is it that bacilli will pass the mucous membrane of the alimentary tract without lesion and apparently without detention.

Both these questions can be answered simply and convincingly if you can rely upon an experiment said to have been made by Nicolas and Descas. These experimenters working in conjunction fed to fasting dogs, bouillon containing vast quantities of tubercle bacilli. In a very short time they found that smears from the thoracic duct showed tubercle bacilli.

If this experiment is free from error, and so far as I know, no one has disputed it, then it indicates how easily bacteria can

and do enter our circulation. If a foreign body or a bacillus should gain the thoracic duct it would be poured into the great veins; then into the right side of the heart, thence to the pulmonary circulation to be screened out and cared for in nature's way. If the conditions are unfavorable the bacillus will succumb to the onslaught of phagocytes. If the conditions be favorable then the bacillus gains a foothold and we have the formation of the classic tubercle. I do not doubt in the slightest that bacilli and foreign bodies can be and are inhaled deep into the lungs. Neither do I doubt or question the possibility and the probability of infection in tuberculosis by this anatomical route. For me it has been one of the hardest things to give up the inhalation method as the most prominent route of infection, but slowly, reluctantly, I have come to believe strongly, that infection through the bronchi is of far less frequency than through the intestinal tract. If then this is so and our picture is true one must not lose sight of the fact that the bacillus has reached its lodgement in the lungs via the circulation and not by the way of the bronchi. It cuts out of consideration nearly entirely direct pulmonary infection by inhalation, except in so much as infected dust may be breathed into the nose and pharynx and its contagion deposited upon the moistened pharyngeal walls, to be swallowed later. And all this looks reasonable and possible. It has the stamp of probability. To me it seems to be true.

Turning sharply away from the speculative I would invite your attention to the tangible, to something within our grasp, a thing which we can try out and run down. I am sure you are not blind to your environment, even in Los Angeles, in Southern California. Each of you try and go out with me in his imagination to the streets and alleys and filth holes in this dirty but beautiful city. Turn about you, anywhere, everywhere and it is flies in swarms upon decaying vegetable matter and the sputum and spittle of your streets. As you walk along your streets, say Second and Spring, look carefully (in fly season), and see the great number of flies actually contending over spit. And there certainly seems to be enough for them without fighting for it. If you will follow that gourmand of a fly

farther, watch your fruit stands and see the grapes, the dates, and all fruits covered with flies. At one of the very finest fruit stores in the city I have repeatedly seen the box of dates which had been broken open, swarming with flies, while within one hundred feet, there were upon one occasion as many as five cadaverous consumptives, one of whom I positively know spat upon the street and I watched the flies rush for this sputum like gulls after food thrown into the sea. Go on farther and look into your stores which sell bread and pastry. Flies there too, and on the bread you eat. The meat market must not be overlooked. Have any of you noticed how the meat of this city is handled? But it is cooked before using you will say. Granted, but still do not fail to look your butcher shop over well and don't forget the sausages, and such other things, some of which are not cooked before eating. It is good for the appetite that you note such things. Of course I have not ventured to suggest that you go into the cheap restaurant kitchens as I have no desire to disgust you utterly. Let's pass the restaurants by and go on down to the small shops and homes in the poor sections of your city. Flies everywhere! In the children's mouths and noses; in the house, out of the house; on the food left there upon the table which is never cleared; on the food left over and which the children eat at all times between meals—in the milk pitcher, in the soup, in the molasses, in and upon every conceivable thing. If this picture is not bad enough for your notice watch the candy exposed for sale to your children by the street vendor. Just take a good look at him when fly time comes again.

And this is the exact, the literal truth of Los Angeles. It seems bad enough, certainly, but you of other cities, St. Louis, New York, New Orleans, are even greater in your filth and thereby you have the fly in greater numbers. What is true of one city is practically true of all others.

Bent upon seeing the fly in the environment of its greatest prosperity, where it has plenty to eat and drink, in common with man, I have peeped into the shops and homes of the poor in several large cities. In two things the poor, nearly universally, have a common habit, viz., leaving the table set, with cold foods

left over from the meals upon which the flies in summer congregate in enormous numbers and from which, the children, from time to time, run in and help themselves. Now then if there be a consumptive in that house or nearby who is careless with his sputum, is it unreasonable to believe that flies feeding upon this sputum may not in the course of the day deposit bacilli upon this food, so exposed? Not all bacilli gain a foothold though taken into our bodies in enormous quantities. We cannot escape the fact that the majority of cases of tuberculosis can be traced to a previous close contact with someone suffering with the disease. If Pottenger and others are right either wholly so or in part that the disease is contracted in childhood, then we can understand how these children got their infections. Delayed manifestations of the disease can be explained by different causes, certainly to the natural immunity that certain ages have to certain diseases.

In the Philippines the army medical officers found that cholera was continually spread by street vendors and small shop keepers whose articles of food for sale were constantly exposed to contamination by flies. You medical officers of the army know how hard it is to guard against typhoid fever in a permanent camp simply because of this same pestiferous fly infecting the food from fecal matter. These are demonstrable facts, undisputable. Is the theory of the fly transmission in tuberculosis less reasonable?

Tuberculosis is conveyed from one person to another person by means of infected sputum and there is no intermediate host in whose body the bacillus multiplies. The bacillus that gains a lodgement in one man's lungs is the same bacillus that was given off from another man's lungs without any change whatsoever. By means of the fly this bacillus may reach the intestinal tract of some person in a very short time after it has been expectorated from another person's lungs; or it may be deposited upon the food which is not immediately eaten and which may be sent out to localities far removed from close proximity of a consumptive.

Wherever the fly is there you will find consumptives. I have collected reliable data from all over the world on this point

and to put it another way, there is absolutely no question that where there is consumption, there is the fly also. On the north-west coast there are few flies and in certain portions of Scotland the same is true. But flies do appear in these sections for a short time in the summer.

If the claims that have been made be true, it does not alter the practical question at all. The same grand fight for better housing of the poor must be kept up by such men as Otis, Bowditch, Knopf, Flick and others too numerous to mention. The fight belongs essentially to the sanitarian. The old struggle is the right one. Every particle of sputum should be destroyed whether or not we believe in the fly theory or inhalation method; failing that, as of course we shall to a greater or lesser extent, than continue the fight for clean houses and clean backyards and clean food without contamination by flies or by infected dust.

FIRST AID DOGS.

AMID the gorse near the windmill on Wimbledon Common an interesting exposition of the work of ambulance dogs in war was recently given by Major Richardson, assisted by members of the Hautdeville Royal Army Medical Corps (Volunteers). Two dogs were equipped with canvas jackets fitted with first aid appliances and little casks containing brandy and water. Both were smaller than collies, though containing a good deal of the collie, with a dash of the retriever in one case, and of the Eskimo in the other, and their work was to discover "wounded soldiers" for the ambulance party in attendance. It was impossible for the dogs to work by scent on the present occasion owing to the number of persons crossing the common, while the absence of blood was another drawback to a complete illustration of their usefulness. But they worked by sight and sound excellently, quickly discovering men, and docilely lying down by the "wounded" men so that the latter might help themselves to stimulants and bandages. Major Richardson stated that he has sent several of his trained ambulance dogs to the Russian army in Manchuria, and that the German War Office have also given him an order.—*United Service Gazette*.

PRACTICAL HEARING TESTS.

BY MAJOR WILLIAM SOHIER BRYANT.

OF NEW YORK.

LATE BRIGADE SURGEON OF UNITED STATES VOLUNTEERS.

WHAT sound is it necessary the recruit should be able to hear? Surely not the tick of a watch, not the click of an acoumeter, or the tone of a tuning fork; but the sound of the human voice.

The unreliability of hearing tests in common use is due to many causes. Most important of these is the difficulty in closing the other ear, while testing the one. This must be done, because, unless an ear, is hermetically sealed, some sound will enter. When the hearing of one ear is normal or abnormally acute, carelessness easily allows sufficient sound to enter the one ear to vitiate the tests of the other. Besides, the distinctness of articulation is very subject to change, and makes a considerable difference in the carrying power of the voice. The faculty some people have of reading the lips is another possible source of error which it is hard to eliminate entirely, without the greatest care (mirrors, etc.).

The fact that in quantitative hearing tests mechanical devices are usually used, shows that the ordinary voice test is not wholly satisfactory, and is considered inadequate. This inadequacy is due to the inexactness and unreliability of the results. But the hearing capacity for mechanical sounds is not an equivalent of the hearing capacity for the voice, because in a considerable number of cases the hearing for mechanical noises bears no relation to the hearing capacity for the human voice. This irregularity is usually caused by various tension anomalies of the sound conducting apparatus of the middle ear, which affect the acoustic balance differently, impeding the passage of certain groups of tones more than certain others. It is also caused by

similar disturbances of the sound perceiving mechanism. An illustration : A man forty-three years old—

Watch O. S. $\frac{5}{60}$ O. D. $\frac{60}{60}$

Voice O. S. $\frac{36}{40}$ O. D. $\frac{40}{40}$

Voice tests alone are unsatisfactory because of the considerable space required to make a test for loud or even ordinary speech, and also on account of the variability in intensity, pitch and clearness of articulation in the voice of the examiner. For these reasons the mechanical tests are usually added. Why else use the mechanical tests as a control for the voice tests? The tests by the mechanical means are also subject to considerable variation, unless applied by a trained examiner. The tuning fork must be held at a constant distance, and the interference of the prongs must be kept in mind. In using the watch or acoumeter, a considerable difference in the results is noted, caused by the angle at which they are held with reference to the axis of the auditory meatus; also in the way they are held. For instance, a watch held in the hollow of the hand with the broad surface towards the ear is heard much further than if the watch is suspended with its narrow side towards the ear. The variation in the intensity, pitch and clearness of articulation of the voice seriously affects the exactness of the results, and the practical impossibility of two examiners giving exactly the same voice test interferes with the comparison of their different observations.

Injustice is done, first : to both parties, by the rejection of a capable recruit ; and second: to the government when a recruit is accepted with hearing sufficiently impaired to interfere with his performance of duty, or when the defect may later be used as the basis for a pension claim. Under the first group comes the man who cannot hear mechanical sounds but who has a very good ear in other respects, as shown by voice tests. I have at present under treatment a civil service applicant, aged 25, who failed of appointment because the tick of a watch was not sufficiently well heard in one ear, but no defect of voice hearing was noticed. Under the second group comes the man who can hear the mechanical sounds well, and has a bad ear and poor voice perception, or the man who through error or carelessness of the ex-

amirer or his own clever deception gives a good hearing test, thus allowing the enlistment of a man whose hearing is below par. This class of cases is especially important in a country like ours, where the recruit may later claim a pension for loss of the hearing which he did not possess at the time of his enlistment. During my service as aurist to the 7th Army Corps I noted a number of instances where recruits had been accepted in this way, as was shown by the chronic defects in their ears, which from their nature must have existed long before the time of enlistment. The truth of this was confirmed by the honest ones who readily admitted that their hearing was defective before enlistment.

The phonographic acoumeter invented by me, alone gives an absolute and unvarying test of the hearing for the human voice, the lack of which has long been a stumbling block in the path of the otologist. This acoumeter overcomes all difficulties, for it can be manufactured in large numbers with perfect accuracy, and the pitch and intensity of its mechanical human voice does not vary. Nor can the sound enter the wrong ear. The voice produced by the machine has a constant intensity and pitch, the intensity of the sound conveyed to the recruit being under accurate control of the operator, who can modulate it from the loudness of the voice when a speaking-tube is used, down to nothing. In this way the machine allows the operator to determine accurately the limit at which the recruit is able to hear sufficiently distinctly to repeat the words spoken by the machine. Distance is no longer needed for the voice tests.

This acoumeter provides a sure method of detecting feigned deafness, which is a very important matter in European armies. If the feigned deafness is anything short of absolute the recruit will easily be led into a trap, for it is impossible for him to give answers consistent with the varying positions of the graduating valve combined with changes in the malingerer's valve. When the malingerer feigns deafness in only one ear, the malingerer's valve, turning the sound on and off from the ears, rapidly alternating or simultaneously, distracts the recruit, and prevents replies consistent with any considerable degree of real deafness.

The tests obtained by the use of this acoumeter can be readily compared, in the same way that an ophthalmologist com-

compares his visual tests, with the assurance that the tests in every case are practically accurate.

CONSTRUCTION.

An Edison standard phonograph*, *A*, fitted with a rubber

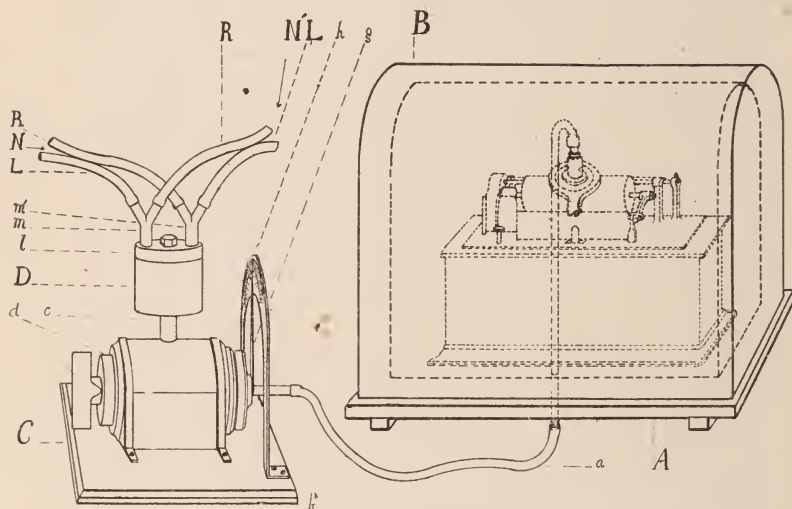


Fig. 1.

tube, *a*, is placed in a sound-proof box, *B*, made of sheet lead. The tube, *a*, leads the sound out through the box wall. A brass graduating valve, *C*, is attached to the distal end of the rubber tube, *a*. This valve serves to regulate the volume of sound conveyed to the ears of the patient.

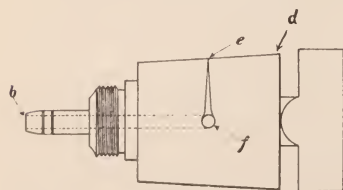


Fig. 2.

The graduating valve has a central disc, *b*, and a side outlet, *c*. The plug, *d*, of the valve, *C*, (See Fig. 2) has a groove, *e*, on its surface leading from the side of the plug outlet hole, *f*. The groove, *e*, is made like the section of a bent cone with its base at the hole, *f*, and its axis extending for 90° over the surface of the plug, *d*. Fig. 3 shows the plug, *d*, in section through the tapering cone, *e*, and the outlet, *f*. The tapering cone, *e*, serves

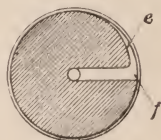


Fig. 3.

*National Phonograph Co., Orange N. J., U.S.A., makers.

to gradually close the passage for the sound through the graduating value, *C*. This valve (*C*, Fig. 1), is fitted with an indicator needle, *g*, and dial, *h*. The needle is attached to the rotating plug, *d*. The dial is an arc of 100° . The reading on the dial indicated by the needle gives the proportionate amount of sound reaching the patient's ear, 0° when all the sound reaches the patient, and 100° when no sound goes to the patient. After leaving the graduating valve the sound is conveyed to a three-way brass valve called the malingerer's valve (Fig. 1, *D*), shown in Fig. 4, which has one inlet, *c*, and two outlets, *i* and *i'*,

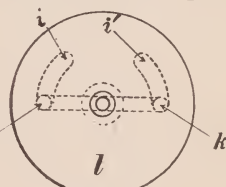


Fig. 4.

cut in *L* and *R* such a way that rotation of the disc will open or close the outlets, *i* and *i'*, alternately or simultaneously.

The outlets, *i* and *i'*, correspond to *k* and *k'* in the disc, *l*, with Y-tubes, the Y-tube, *m*, a rubber tube; goes to the limb intended for the and the other way to the limb for the right ear

The two arms of are each fitted with one of the tubes of a stethoscope in-patient's right ear, tube in a similar of the stethoscope of the operator.

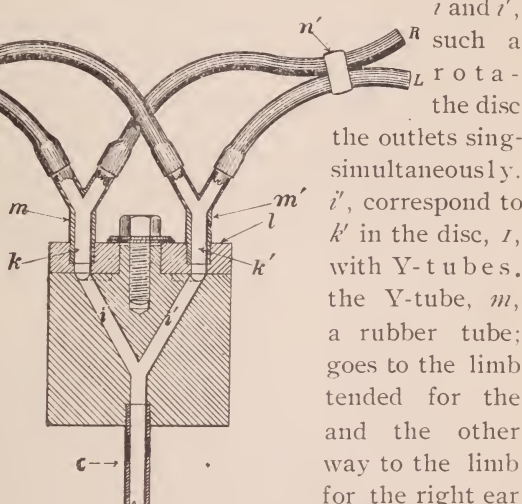


Fig. 5.

The other Y-tube, *m'*, is rigged in the same way for the left ears. The tubes for the patient are *n*, and the tubes for the operator are *n'*, both rights and lefts, *R* and *L*. Fig. 5, shows the disc, *l*, of the malingerer's valve, *C*. *k* and *k'* are the passages through the disc, *l*, which corresponds with the elongated openings of the forks of the inlet, *c*. The shape of *i* and *i'* allows the alternate opening and closing of the sound passages.

The cylinders used in the phonograph are made from permanent master records. They can be readily replaced when worn out. The records are made from carefully selected monosyllabic words in common use, with special reference to the logographic value of the consonants.

The operator is provided with a slip of paper on which the words of the records are printed to enable him to check the words as the recruit repeats them after the phonograph.

MODE OF OPERATION.

The recruit is instructed to repeat all he hears, and his ear tubes are adjusted in his ears, the examiner taking his own tubes. The indicator is placed at 100° on the dial, and the phonograph is started. The operator slowly moves the indicator until the recruit remarks that he hears but does not understand, or repeats the words incoherently. Then the examiner, still moving the indicator, checks the words which the recruit repeats correctly on the word list previously provided. When the recruit repeats at least seventy-five per cent. of the words correctly, out of ten or fifteen words, the scale is read and the test is completed. The reading of the scale gives the acuteness of hearing possessed by the recruit. To get the absolute hearing, this number should be squared and multiplied by the per cent. of words accurately repeated. A quick way of writing it is in the form of a fraction, the numerator being the reading of the scale, and the denominator the per cent of words repeated. The ears are tested separately in the same way, by adjusting the three-way valve for the separate ears. Normal hearing for adults ranges between 70 and 80. Hyperacusis ranges above 80.

In order to test unilateral malingering, the indicator is placed at a point at which the recruit hears readily by both ears together, and the operator quickly turning the malingerer's valve with his left hand, cuts off one or the other of the ears, but never both at once. At the same time he marks the words repeated correctly by the recruit, with + for right, and — for left and 0 for both, or some similar symbol. The result will show conclusively, first that the patient can hear, second, that hearing of the two ears bears a constant proportion each to the other. If the

recruit suspect some trick, the relative proportion will be irregular, for no recruit can be quick enough to detect accurately every change in direction of the sound. The hearing for the good ear alone must equal the hearing for both ears together, if the bad ear is deficient to any considerable degree.

The same procedure combined with changes in the graduating valve serves to detect bilateral feigned deafness.

SUMMARY.

The phonographic Acoumeter gives a satisfaction and accuracy not hitherto attained.

It furnishes a universal standard, whose records are always comparable.

It provides a sure method of detecting all forms of feigned deafness short of feigned total deafness.

DISCUSSION.

SURGEON CHARLES F. STOKES, U.S.N.—I would like to say a word in connection with hearing tests as applied to the navy. I think it a matter of great importance to know the condition of the ear drums. Our men are frequently exposed to the effects of gun fire blasts causing rupture of the drums. For instance I had as my patient at Santiago, a lieutenant who, before the battle of Santiago had seen service on the *Oregon* on her trip around from the Pacific and as a result of the first bombardment he had both ear drums destroyed. He was sent on board the *Solace* during his convalescence and he eventually recovered the hearing in both ears. I think it is of great importance to know the condition of the drums of those entering the navy, as many with defective drums soon become disabled from gunfire.

THE PRESIDENT: I think one of the most desirable things in the world is a desirable test for hearing, and I have great hopes that this invention of Major Bryant's will prove all that is desired in that direction.

THE USE OF IODOFORM IN WOUNDS INFECTED WITH LARVA.

THREE cases of wounds infected with the larva of flies are reported by Dr. J. Legendre; they all contained masses of living diptera larvæ which were removed with forceps as far as possible. The smaller ones were left, and the wounds freely dusted with iodoform; all the remaining larvæ were killed within twenty-four hours, and the wound took on the aspect of an ordinary infected wound and healed rapidly.—S. M. DELOFFRE.

RADIOGRAPHY IN ARMIES IN THE FIELD.

BY DR. H. MARESCHAL.

PRINCIPAL PHYSICIAN OF THE FIRST CLASS IN THE FRENCH ARMY.

TRANSLATED BY LIEUTENANT C. J. BARTLETT.

MEDICAL DEPARTMENT, UNITED STATES ARMY.

EVERY one knows how desirable it is, and at the same time, difficult to supply the medical units at the front with a good x-ray machine. This latter must, in fact, answer to the following desiderata, which it has been impossible until now to realize: irreproachable function united to an extreme mobility. This last quality is almost as indispensable as the first, for from the point of view either of economy, or of the length of the columns, it seems sufficient to limit ourselves to one plant per Army Corps.

In France, during the Grand Maneuvers of the East, in September, 1904, Surgeon Major Jacob, Associate Professor at the School of application of military medicine of Val de Grace, experimented with a radiographic motor wagon, intended for armies in the field. This wagon, constructed by the firm of Gaiffe, of Paris, from the point of view of electrical apparatus, and by the firm of Panhard & Levassor, of Paris, from an automobile standpoint, comprises:—

1st. A *closed motor wagon*, the appearance of which recalls that of the French ambulance of 4 wheels. Its motor, of ten horse power, can give it a speed of 25 kilometers per hour. Its wheels are supplied with solid rubber tires.

2nd. An x-ray plant. This latter is none other than the new apparatus presented by Messrs. d'Arsonval and Gaiffe at the Academy of Sciences of Paris in 1904, and the detailed description of which is found in the Archives of Medical Electricity of 1904; its characteristics are that it works with neither an interrupter nor

a storage battery and that it is able to furnish a power (in a way) unlimited.

The rear of the wagon opens horizontally with two doors : the upper door can be maintained by means of an iron rod in such a way as to furnish a sort of roof ; to this door is attached long curtains of black cloth which reach to the ground and thus make a *dark room*.



Radiographic Motor Wagon.

When the wagon has arrived at its destination, its motor is utilized to work a dynamo placed under the seat ; this dynamo furnishes the alternating current necessary for operating the radiographic apparatus.

During the entire duration of the Grand Maneuvers, the radiographic wagon was subjected to very difficult tests. It travelled in the neighborhood of 2,800 kilometers, passing over all routes that in time of war would have been traversed by the wagons of the Medical Service. Each day, either along the roadside, or upon the arrival at the halting place at the end of the day's march, the wagon was immediately experimented with, for two or three hours, from a radiographic standpoint, and it was agreed that the workings of the apparatus had been constantly perfect.

There is then ground for hope that the happy innovation of Messrs. Gaiffe and d'Arsonval will soon form part of the authorized material of armies in the field, so much the more because, besides its medical uses, this device serves also for wireless telegraphy.

I add that it will not have to await the horrors of a war to render itself useful, and that, in a time which I think nearby, the Physicians in small towns will be enabled to telegraph the Prefect of their Department to place at once at their disposition means radiographic and radiotherapeutic which have been lacking until now to the sick and wounded who can not be transported and who are at a distance from the great centers.

TRANSLATOR'S NOTE.

The machine described seems one of merit and utility. Its usefulness would probably be restricted to the Base and Reserve Hospitals. The possession of such machines would ensure the presence of an x-ray apparatus in these more or less permanent hospitals in the rear of the fighting forces, where they would be of great value, and where, but for the mobility of the machine itself, they would be absent.

THE PROPHYLAXIS OF EPIDEMIC DISEASES IN THE RUSSIAN ARMY IN MANCHURIA.

THE Society of Physicians of Moscow have sent sanitary detachments into Manchuria for the special purpose of combatting epidemic diseases. They were recruited from the Bacteriological Institute of Moscow, where all the sera and vaccines discovered by modern science are prepared. All the members of the detachment were inoculated with anti-typhoid serum, and were furnished large quantities of anti-dysenteric serum and other therapeutic sera. Each sanitary detachment was composed of a central column (3 doctors, 2 students, 8 disinfectors), and three flying columns (1 doctor, 1 student, 4 disinfectors). They were furnished with steam, formaldehyde and other chemical disinfecting apparatus, instruments and equipment necessary for hygienic and bacteriological research, vaccines, prophylactic and therapeutic sera. The central column stops in cities, establishes laboratories, makes all the researches, and dictates measures to localize and check epidemics. The flying columns are sent out in other dangerous localities.—S. M. DeLOFFRE.

Enno Sander Prize Essay=1904.

THE RELATION OF THE MEDICAL DEPARTMENT TO THE HEALTH OF ARMIES.

BY LIEUTENANT COLONEL WILLIAM HILL-CLIMO, M.D.
LONDON, ENGLAND.

LATE HONORARY SURGEON TO THE VICEROY OF INDIA;
ASSOCIATE MEMBER OF THE ASSOCIATION OF
MILITARY SURGEONS OF THE
UNITED STATES.

"He who has decided on war, or is convinced that his adversary has done so, must forthwith open hostilities, if it be to his advantage from a military point of view. No political doubt, no moral scruple must keep him from it." *The Military Lessons of the South African War*, by General von der Goltz in the November 1903 number of the *National Review*.

THE subject of this paper is singularly opportune, for the principle formulated in the above quotation has received the acceptance of all the great Continental powers, and it will have to be reckoned with in the future, but without this warning the history of modern wars shows that time is all important hence that army which is best prepared for war on the outbreak of hostilities, and which possesses the greatest mobility, is the most efficient. It is from this standpoint that I propose to discuss "The Relation of the Medical Department to the Health of Armies," and in the belief that hitherto the Medical Department in peace and in war has not been effectively employed, for, notwithstanding the progressive development of sanitary science, medical officers are not afforded much greater opportunity for putting it into practice than when sudden death was ascribed to the Visitation of God.

The bulk of this paper was finished before the outbreak of hostilities between Russia and Japan. The progress of this war gives substantial support to the views herein expressed.

Preparedness for war depends upon military efficiency which primarily depends upon the physical efficiency, in other words upon the health of the troops. The reference is to the soldier presumably healthy, who is at his duty, and who is living in barracks, and to the relation which the medical department bears to him; theoretically a certain responsibility rests with the department to keep the soldier in health, but it is a responsibility which by design has been divorced from power and which consequently cannot be enforced. Many causes have contributed to this result of which prejudice, apathy, and the conservative instincts of armies are important, but standing out as the *causa causans* is disbelief founded on ignorance not only on the part of the soldier, but of others in high places, of what sanitary science is capable of doing for the preservation of health, and for the prevention of epidemic diseases. In the light of recent discoveries it will be no longer possible to take shelter under Dr. Johnson's famous plea, "honest ignorance, my dear madam, honest ignorance."

This want of appreciation of medical science has restricted the work of the medical department in peace to attendance on the sick in hospital, and to the training of sick attendants and bearer companies. Thus "cramped, cabined and confined" the rôle of the medical department has been to advise only in sanitary affairs and from the nature of the case this advice has been of a desultory character being sometimes partial, or it is not timely, or it is attended with practical difficulties which have not been fully considered, for which the medical department is blamed, when the fault lies with the system under which it works. We live in an age of military reform; officers are advised to take the initiative, and to assume responsibility; and for this purpose decentralization and sub-division of work are suggested yet the medical department remains much the same as it always was, and it is not afforded the means of carrying out those beneficent measures, which sanitary science places at its disposal. The question is simple, it is whether the medical department is to remain advisory, or is to be given executive power; before this paper is finished it will be shown that conception and execution are inseparable.

It is for Governments to decide this question; towards this object it will be helpful to give a summary of the duties which the progress of modern warfare demands from the medical department, and which medical science gives it the power to execute, and to compare them with those actually performed at the present time. These duties are in peace (1) the selection of the recruit, and his health preparation for training, (2) the safeguarding of the health of the soldiers serving with the colors, (3) the treatment of the sick in hospital and during convalescence, (4) the prevention of epidemic diseases and (5) preparation for war. In war its duties are the care and treatment, including transport, of the sick and wounded, and the prevention of zymotic diseases notably of dysentery and enteric fever.

Nations which are compelled to adopt conscription because their frontiers are coterminous, and which at any time may become hostile, are not embarrassed with recruiting difficulties, for their supply of recruits, who are physically fit for immediate training, is ample, and their enlistment is automatic, but for nations, whose garrisons are spread over many continents, and whose system of recruitment is voluntary, the problem is a complicated one. The two great powers, which adopt it, are Great Britain, and the United States of America; they no longer count upon insular isolation, or upon supremacy on one continent as a complete protection, their interests are world wide, and the power to protect them must be commensurate. Steam and electricity have revolutionized the military positions of most countries, and have given to those, which are ready for war, a supreme advantage. Bearing these facts in mind it is the relation of the medical department to the health of armies which are recruited by voluntary enlistment; which will be chiefly considered, but the main principles, especially those relating to war, are applicable to all armies however raised and wherever serving.

The selection of the recruit is the first necessity in the organization of military forces.* In so far as capacity for military service can be determined from the standards of height, weight, and chest measurement, and by freedom from organic diseases

*Military Hygiene. Munson.

this duty can be equally well performed by a civil practitioner as by a medical officer of the regular army, but there is something more required, for the examining medical officer must be able to say that the recruit is fit to begin training, or, if not, what health preparation he should undergo, and he must be able to forecast the probable effect which military service will have on his future efficiency. Theoretical and general medical knowledge is not sufficient, it needs experience which can only be gained by a close association with the soldier in his work, and by being in constant touch with military affairs.

Voluntary service armies in war are largely supplemented by auxiliary forces, militia, yeomanry and volunteers; in composite armies so raised, often hurriedly, the medical examination of recruits, etc., is not satisfactory for the reason just given, besides medical officers of the auxiliary forces through local circumstances are more susceptible to social and official pressure. In war the dearth of men is so great that the regulations are set aside, and sometimes political exigency is satisfied with a paper army that is to say men are enlisted, and shown on the strength, who would never be selected, by experienced medical officers of the regular army, as fit for field service, and who by no possibility can reach the fighting line. Recent wars have shown that such laxity jeopardizes the success of military operations, fills the hospitals with sick, and paralyzes the work of the medical service for which the medical department is afterward blamed. In the performance of this duty the medical service must be granted greater independence and freedom of action.

The safeguarding the health of the soldiers serving with the colors rests with the officer commanding the troops which is in accordance with regulation and with custom; the correctness of this principle cannot be disputed for it is essential for success in war, it is the way it works out in practice which is so objectionable because from the General Officer Commanding-in-Chief this duty runs down the whole gamut of command to officers commanding regiments and corps units the medical department being only called upon for an opinion as may be considered necessary. This system is doomed to failure because of the limited action

which is allowed to the medical service, because the executive is entrusted to unskilled hands, and because the responsibility is frittered away in so many different agencies. Were army affairs managed as a commercial undertaking and run on business lines the General officer, as Managing Director, would ask himself this question: How can the health of the army be best safeguarded with the least danger to military efficiency, and for this purpose what is the best agency?

As it is universally acknowledged that for the successful prosecution of enterprises of war, the authority of the officer commanding the troops in all matters relating to his command must be supreme there has been considerable difference of opinion as to what Agency and in what manner this duty should be performed. Recently two schemes have been placed prominently before the British public, which may be said to have originated in the lamentable loss of life from preventable diseases, which took place in the South African War. One of which, voiced by Dr. Leigh Canney, is based upon the "responsibility of all non-medical officers for the executive sanitary work of camps and units," and "for the incidence of enteric, dysentery and cholera in their units" the medical department supplying sanitary officers "in one of two capacities (a) advisory at the request of the officers of this camp or unit and (b) critical and peremptory for purposes of inquiry after every outbreak of these diseases."* The other has been from time to time suggested in military and other magazines, and has recently found strong support in the "Report of the Commission on the Nature, Pathology, Causation and Prevention of Dysentery and its relationship to Enteric Fever" of which the War in South Africa was the occasion. It is that the Medical department should supply executive sanitary officers by dividing the department into two branches (a) the medical branch and (b) the health branch.†

The relation of the medical department to the health of armies will be determined by the adoption of one or other of these

*"The Abolition of Typhoid (Enteric Fever) Dysentery and Cholera in Armies" by Leigh Canney, M.D. (London) in the October 1903 number of the *United Service Magazine*.

†Personally I prefer this branch to be designated the "Sanitary" as associated with environment, and the prevention of disease as well as with the individual; it will be so referred to in this paper.

proposals. The author of the non-medical officer executive sanitary scheme does not appear to have considered the question in all its bearings for it ignores the necessity of these officials possessing medical knowledge of the individual. Leaving out of consideration personal vulnerability to disease, which sometimes even the skilled physician finds difficult to distinguish, I would ask how is it possible with such an agency to take effective sanitary precautions in the case of large bodies of men gathered together in limited areas unless the health of the individuals composing them is kept under constant observation as well as the environment? With an army in the field the necessity is the greater because sanitary defects so speedily occur and are so quickly followed by epidemics, hence one case of epidemic disease, not promptly recognized, may give rise to incalculable damage. Besides this scheme fails to take account of the fact that the chief duty of the medical department is with the person of the soldier, and that everything which detracts from that position is injurious to the welfare of the individual and to the efficiency of the medical service.

This proposal seems not only to be based upon the non-recognition of the importance of sanitary work, but of the professional duties of regimental officers, which are to train the soldier and to fight and to beat the enemy. The proposal belittles both the work of the soldier and the work of the sanitarian. I have dealt with this subject at this length because it has obtained some support, but in my opinion it is quite unworkable. Another and better way will be found in the creation of a health branch of the medical department which, while maintaining the responsibility of commanding officers for the health of their men, will associate the medical service with these officers in executive sanitary duties in a more direct form than at present exists as will be more fully detailed in the course of this paper.

The treatment of the sick in hospital and during convalescence is taken together because until the soldier returns to duty, dies or is invalided the medical department should be the sole responsible authority. At the present time medical officers in command of hospitals enjoy perfect freedom in hospital administra-

tion, and the relations of the medical department to corps, to which patients in hospital belong, are generally satisfactory, but this is not the case as regards convalescents that is of men either attending hospital or who on discharge from hospital have not yet been returned to duty; this subject is important and will be referred to again. Some medical officers have claimed that authority should be given to them to punish offences committed in hospital, but this claim has been rightly objected to because hospitals should not be associated with punishment in the mind of the soldier. There are other objections, equally forcible, which need not be discussed for the disciplinary power of making patients prisoners for breaking hospital regulations, etc., is sufficient for all practical purposes.

Malingers apart, of whom by the way it has been my good fortune to have met but few, there appears to be a disinclination on the part of the soldier to go into hospital; it is a very natural feeling, but it has been recently discussed as if the fault lay with the medical service; without accepting this dictum there is no doubt that for the maintenance of harmonious relations between the medical department and armies it is essential that hospital life should be made as comfortable and as homely as possible; soldiers should look upon military hospitals in the same light as civilian patients do upon civil hospitals; comfort is not incompatible with the maintenance of discipline and obedience to orders. Also there should grow up a feeling of trust between the sick and the medical staff of the hospital, which the medical department should in every way foster. Confidence in a patient springs from belief in his medical attendant; it cannot be manufactured by order. For the medical department to attain to this position of usefulness it must be specialized, which will entail certain modifications of organization to be presently described.

Specialization of work and co-operation are the two most important factors in human progress; the former is seen in its greatest developments in the navies of the great powers, and for armies, though it has not been brought to the same excellence, it is recognized as a powerful means toward success. Recent scientific discoveries have put within individual reach an excel-

lence in professions and in trades, which a few years ago was not attainable, now it is a doctrine which is preached from the house-top and it confronts us in every walk of life. Specialties have been successfully followed by the medical profession in civil life, and the progress of medical science shows that they will be still further developed in the near future to the comfort and happiness of the human race. It is time for the medical department to take this lesson to heart.

The sphere of usefulness of the medical service has been greatly circumscribed because with its conservative instincts it has clung to the old idea that medical officers, once commissioned, were fit for any and every post their department chose to employ them in, it is an anachronism, and it is only a variant of the pleasant Irish extravagance that "one man is as good as another and six times better." It spells failure. The medical department must march with the times; in selection, if it be righteously used, lies the road of progress, but for this purpose the department must make itself acquainted with the merits of its officers as suggested in the article from which the following extract is taken.

"The first duty of the head of any department, and of none more than of the medical, is to make himself acquainted with the special merits of his senior officers. One medical officer may be a good physician, another a good surgeon, a third a good sanitarian, and a fourth a good organizer, while it is impossible to find all of these points of excellence in one and the same person there ought to be no difficulty for a department to be so informed that it would be able to employ its officers to the best advantage."*

Without efficient and economical hospital administration the specialization of the department is impossible because of the expense, which can only be dealt with by gradation of work and co-operation of which the lowest rung of the ladder must be made the starting point. At the present time a great gulf separates medical officers from the non-commissioned officers and men of the medical corps, which must be bridged over. The work re-

*"Army Medical Organization" by Brigade Surgeon Lieutenant Colonel William Hill-Climo, M.D., Army Medical Staff (retired). December 1894 number *United Service Magazine*.

quires a highly technical training which the existing system of recruiting of the corps, and the previous education of its recruits make difficult, a subordinate medical service, such as exists in India, recruited from other classes and educated on a higher plane, is necessary; such a service would possess the confidence of the sick, and would be a sympathetic link between officers and men.

With the same object the nursing of the sick will have to be re-organized. It is a specialty for which women are best suited, they possess the natural gentleness and patience so necessary for this office besides they instinctively understand the details which make for comfort, details which the ordinary man looks upon as trifles, but which are of prime importance in the sick room. It is asking too much to expect these qualities in young men even when belonging to a superior class. Of course these changes will involve a re-organization of the army medical corps, which will afford the opportunity of utilising the services of the non-commissioned officers and men of the corps in other and not less important duties.

The care of convalescents, that is of men, who have returned to their regiments on discharge from hospital, but who are not yet fit for duty, has always been unsatisfactory; it affords another instance of divided responsibility between officers commanding regiments and the medical department; it is unsatisfactory to convalescents because, when they need it most, they are deprived of effective health supervision, but it is equally so to their comrades occupying the same barracks for they are thereby exposed to the danger of contracting such diseases as dysentery and enteric fever. The pernicious habit of allowing chronic cases of tuberculosis to live in barracks on discharge from hospital, while awaiting discharge from the service, needs no comment; financial, and not sanitary reasons have hitherto been chiefly considered. So also the detection of serious diseases in their early stages is made difficult and the segregation of infectious diseases is delayed by the want of personal supervision, which can only be secured by bringing the medical department into closer touch with the healthy soldier.

The measures which should be taken to prevent epidemic diseases in armies, are intended to meet two sets of conditions which are general and special; the former are common to all armies and relate to the soldier himself, to service and to military environment, and the latter to localities including endemic causes of disease and to climate.

Of the first set the conditions, which relate to the soldier, are his age and his state of health on enlistment, and his previous occupation. Certainly short service armies, which are raised by voluntary recruitment, are composed of younger men than formerly, and the youth of an army increases its susceptibility to epidemic diseases. The health of the recruit can only be determined from his appearance, his physical development, and a comparison of the causes of rejection with the diseases which the soldier suffers from during the first two years of his service. The direct effect of former occupation, that is of trade or employment is in many cases nil because the enlistment takes place at such an early age that sufficient time has not elapsed to produce permanent effects. Indirectly however the information which occupation gives of the social position, and of the environment of the recruit is of value in estimating the liability of an army to sickness, and its health efficiency in war.

The toxic effects of military service acting on the young and immature soldier are well known to Army medical officers of experience, who alone are competent to deal with them. The point I want to make clear, it is all important, is that it is impossible to have an efficient sanitary service unless its executive officers possess medical experience as well as sanitary knowledge. The present sanitary organization of most armies does not conform to this principle, and in consequence little or nothing is done to put the soldier in a state of defence against zymotic diseases for the medical department has not the power of active intervention, though it is the only authority which could advantageously do so.

Military environment includes all other health conditions, which are common to large bodies of men living together in camps or buildings, which even when well drained and sewered, speedily undergo sanitary deterioration, and become dangerous

to health. It is the same in peace as in war though the defects in peace are not so obvious, nor their effects so immediate. The sanitary faults to which reference is now made, are not obtrusively objectionable, but they are insidious and potent for evil, and require a trained sanitary service for their detection and correction.

An army, which has to provide foreign garrisons, is confronted with health conditions, which are diverse in character, and which are referable to locality and to climate. Endemic diseases have to be considered in relation to topographical distribution, and to the sanitary habits of the people including their social and economic conditions; also the seasonal prevalence of such diseases as dysentery and enteric fever must be investigated in relation to rain fall, to sub-soil temperature, to prevailing winds, and to the rise and fall of underground water. These details are mentioned to show how imperfectly the sanitary service of armies is organized at the present time, for to make it efficient there is required a Medical Intelligence branch of the department to deal with all these questions. The success which has followed the measures taken by the medical department of the United States Army to banish yellow fever from Cuba, and of those, employed by the British Government on the West Coast of Africa and in the Delta of the Nile, to destroy the malarial pest, affords abundant proof.

In the foregoing statement I have described the ideal relations of the medical department to the health of armies in peace upon which their military efficiency in war so largely depends and for the better attainment of this object I suggested that there should be a closer union between the medical department and armies in the training and work of the soldier. I also showed how the present sphere of duty of the medical department fell short of the ideal, and that certain changes in its constitution were necessary, particularly in reference to specialization of work, and to co-operation, to enable it to comply with the demands of modern warfare, and to meet the larger responsibilities which public opinion has imposed upon it. I now propose to discuss the special preparation for war which the department should

undertake during peace; it does not primarily refer to the mobilization of hospitals or to details of equipment, etc., but to what has not been inaptly termed the medical strategy of war, which hitherto has received but scant attention, though local conditions relating to supply, to means of transport, and to the suitability of the regulation equipment to climate require previous careful study to avoid unnecessary expense and useless labor of which the proof will be given later on.

The student of military history, who has followed the great wars of the last century, will appreciate my standpoint for he knows that the health of the troops and freedom from epidemic diseases are two important factors towards the success of military operations, and he will call to mind how successful operations were delayed, or nullified because the troops were unable to continue their advance owing to sickness. It is a danger which the medical department should foresee and guard against. Owing to the increased effective range of Artillery, and of small arms larger armies will be employed, more ground will be covered, and military operations will be continued for a longer period before the decisive battle is fought. In such circumstances the sanitary police of an army in the field becomes extremely difficult and it can only be successfully undertaken by the previous study of the topographical and sanitary conditions of the country.

The general staff of an army has to consider all possible war eventualities and to formulate plans of campaigns. As these duties are confidential it is impossible to say what has been done by any of the great powers, or to what extent the medical department of their respective armies has been consulted, but judging from experience it may be assumed that medical strategy has obtained but slight recognition. In the pigeon holes of the war departments of most countries there will doubtless be found schemes of defence and plans of campaigns, but it is questionable whether side by side any one of them there lies an appreciation of its medical requirements worked out by the medical department from personal inquiry, and from an actual study of the country and of the people. A few years ago to have advanced this demand would have been flouted at as mere folly, but today we know

that the neglect to have done so put the vital interests of a great empire in jeopardy.

The medical history of the South African war is instinct with proof, and affords a concrete example of the evils which follow the want of intelligent preparation, and co-operation. It is painful at all times to call attention to failure, but especially when it is associated with grievous loss of life, yet it is only in the bitter experience which follows failure that the road to prevention will be found. The same lesson may be learned from other wars, but the South African war is chosen as an illustration for though foreseen by some its advent was sudden, and the scale on which it was waged conformed to what a war, occurring between any two of the great powers, will be. Sometimes we are told that the South African war was so exceptional that it ought not to be accepted for future guidance, but many of the circumstances incidental to every war are exceptional and it is on the recognition of this fact that the present argument is based, for no war in every respect resembles another though general principles remain the same. As the general staff of an army is judged by its capacity to foresee and to provide for exceptional circumstances so also it is the duty of the medical department, and on the completeness or otherwise with which it fulfills this duty, it must stand or fall.

The neglect to prepare for war in peace has been the cause of the want of provision for the care of the sick and wounded as well as for the prevention of epidemic diseases, or to again borrow from military phraseology it has caused failure in the medical tactics of war, which has led to needless expense, and to much useless work. For instance the rules and regulations which refer to the personnel and to the equipment of field and general hospitals, are inelastic being of universal application, and not framed to suit climatic and other special conditions such as local sources of supply, etc. It simplifies mobilization to have fixed scales of establishment and of equipment, but their adoption in each case should not be obligatory, on the other hand they should be so comprehensive that from them the mobilization branch of the medical department could work out what is best suited for the

particular country, which happens to be the seat of war. Sir Frederick Treves thus graphically describes these tactical difficulties as they were observed by him in the South African War.*

"Every field hospital is hampered by a theoretically complete outfit, which has to be dragged to and fro all over the country and it is an immense burden; we were dragging about things that under no circumstances would have to be used in South Africa for example. The outfit of the Field Hospital is suitable for any climate in the world, from the Polar regions to the Equator, it is an exceedingly elaborate outfit, it is complete on paper, and that has to be dragged all over the country."

And again "There is a stereotyped outfit for a Field Hospital or for a Stationary Hospital, any kind of Hospital, and that outfit has to be absolutely complete to the very smallest detail, and that has to be dragged all over the country from one place to another whether it is wanted or not. I suppose I should not be using any exaggeration if I said we could have thrown away quite a half of our outfit and not missed it."

The failure to adapt hospital organization in war to meet local and climatic conditions, grave as it was, was not the worst fault disclosed by the war, for the want of preparation to cope with epidemic diseases showed a lack of knowledge of the sanitary conditions, which obtained in South Africa before the war. These were an impure water supply, subsoil pollution, the prevalence of dysentery and enteric fever as endemic diseases among the civil population, and above all the phenomenal prevalence of enteric fever among the British troops quartered there, which was relatively greater than in any other foreign garrison, including India, for the first nine months of 1899; in war therefore it was not an epidemic but a pestilence, which might be expected. This statement is made not as a reflection on the medical department of the British Army, but to show how necessary it is to make ample medical provision betimes.

Indulgence is craved for the importunity with which this subject is pressed, but its importance, and the persistent neglect, which it has met with, claim for it wider recognition. The ex-

*Report of the Royal Commission on the War in South Africa. Minutes of Evidence Vol. II

perience of France in Madagascar, of Spain in Cuba, and of the United States of America in the Cuban and Philippine Campaigns shows that effective sanitation in the field cannot be successfully initiated unless founded on a thorough knowledge of locality and climate, and a careful study of the sanitary and economic conditions of the people. Its importance to military strategy is thus referred to by Sir Alfred Fripp.*

"That is a point the medical profession can be of great use and may strengthen the hands of the Commander-in-Chief, if only he will let us help to prevent disease. And then, what we cannot get him to see—I am not speaking of the Commander-in-Chief in the late war—but what we cannot get the authorities to see is the strategic importance of it, which comes out very prominently if the figures are examined. If you look at the number of patients sick in Bloemfontein, and then calculate how much it cost the Nation to put each one of these men to the front. I believe it works out about £100 a man, and they went sick by scores and hundreds, as you know, from a disease which was to a large extent preventable. Then again just consider how much sooner Lord Roberts' hands would have been set free to move from Bloemfontein and dash after the Boers up towards Johannesburg if it had not been for that heavy epidemic; and if he had been able to make that move forward earlier it would have saved the nation a considerable number of men, and a correspondingly large amount of money."

This preparation for war requires a staff selected and carefully trained, to it should be allotted certain countries for investigation and report. When war breaks out some of the officers, who had been thus associated with the country which becomes the seat of war, should be appointed to the staff of the P. M. O. of the army as Intelligence Officers, etc. To train these officers will take time and to do the work satisfactorily must necessarily be slow and tedious; if the lessons of war were not so soon forgotten there would be no necessity to urge its importance. Such a service cannot be improvised, it is not less true of this service than of other military services to which the following reference

*Report of the Royal Commission on the War in South Africa. Vol. I.

was recently made by Mr. Balfour, the British Prime Minister.*

"You cannot improvise guns; they take months to make. You cannot improvise a staff; they take years to educate. You cannot improvise officers, mere enthusiasm will not give you trained experts which you require."

Upon the completeness of this preparation will depend the efficiency of the medical service in war, in which its duty is the care and treatment of the sick and wounded, and the prevention of epidemic disease; for the former transport and shelter are the most important: were it possible to house the sick where they took ill, and to treat the wounded where they fell the mortality in war would be but a tithe of what it is, but the care of the sick and wounded is dominated by military necessity, and to meet this demand the first duty of the medical service is to secure their removal in the direction in which they must ultimately travel, that is toward the base unless they quickly recover.

The question to which attention is now invited is whether the existing medical organization, in which are included the relations of the medical department to other corps and departments, is best suited for the treatment of the sick and wounded in war; the medical arrangements for the care of the wounded on the battlefield will best illustrate the point owing to the large number, which simultaneously requires to be attended to. This subject has been recently discussed with singular ability in the *JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES OF AMERICA*.† The treatment of the wounded on the battlefield is intended (1) in all cases to prevent infection by the application of the first field or first aid dressing, (2) in a great number of cases to alleviate shock and (3) in a lesser number of cases to arrest hemorrhage. The sooner after the receipt of a wound it is protected from infection and on the skill with which this work is done will depend the chance of recovery. Colonel Nicholas Senn in the paper just referred to makes the following statement:

*Extract from Mr. A. Balfour's speech at the United Club dinner at the Hotel Cecil, November 27th, 1903.

†"First Dressing on the Battlefield" by Colonel Nicholas Senn, M.D., Ph.D., LL.D., Chicago, Ill. Surgeon General of Illinois, Lieutenant Colonel and Chief of the Operating Staff with the Army in the field during the Spanish-American war; Professor of Surgery, Rush Medical College, Presented to the military section of the Madrid International Medical Congress. December 1903 number of the *JOURNAL*.

"In the treatment of the wounded, the first duty of the Military Surgeon at the front consists in protecting as many wounds as possible, and in the shortest space of time against subsequent infection, and this can only be accomplished by the first aid dressing, which meets all essential requirements, if properly applied."

The agency by which this dressing should be applied has been the subject of much controversy. Some authorities assert that only medical officers should do it, while others say that the non-commissioned officers and men of the army medical corps should assist, but it is manifestly impossible after a great battle for the officers and men of the corps alone to perform this duty *in time*; it follows that the wounded will have to do it for themselves or they will have to be assisted by their comrades.* On this point Colonel Senn's conclusions are.

"In all great wars the number of wounded exceeds the working capacity of the medical officers at the front, and consequently most of the first-aid dressings must be applied by the wounded themselves, their comrades and non-professional non-combatants."

He enforces his views by giving the number of wounded in some of the great battles of the past, of which the following is an extract.

NUMBER OF WOUNDED IN GREAT BATTLES OF THE PAST.

Battle of Inkerman	Russians	9,406
" " "	French and English	13,709
" " Gettysburg	Federals	13,709
" " "	Confederates	14,500
" " Sedan	French	14,000
" " "	Germans	6,483

Surgeon General Stevenson, Professor of Military Surgery in the Royal Army Medical College, London, holds the same opinion, and he shows how impossible it is even to collect the wounded, much less to remove them to the dressing stations and field hospitals, on the day of battle as shown in the following extract.†

*In any future reference to this dressing it will be described as "first aid," which so felicitously conveys the idea of agency.

†"Wounds in War. The Mechanism of their Production, and their Treatment." By Surgeon General W. F. Stevenson, C.B., M.S. etc. etc. Professor of Military Surgery Royal Medical College, London, etc. etc.

"It will, I believe, be apparent from the view of the circumstances under which the wounded can be collected and carried from the field, that the old methods of performing these duties are no longer suitable to the present conditions of warfare and must be abandoned."

Also "The unattainable ideal must be given up and what is the best possible must be substituted for it. It need not be expected in future warfare, as formerly, that all the wounded shall be carried to the field hospitals, and their wants attended to, on the day of a battle; it will be a physical impossibility. As many of them as may be must be so cared for, and more than this cannot be hoped for from a medical service. The rest of the wounded must take their chance; and in proportion as these others are numerous, so will the horrors and sufferings of war be increased."

Were it possible to devise some means of quickly discriminating on the battlefield the more serious cases of wounds which require immediate surgical attendance from those which may safely be left to unskilled hands, though it would not solve the difficulty, it would greatly lessen it. It must be remembered that in making medical arrangements for war it is not the sick and wounded only which have to be considered but the *morale* of the army on which its fighting power depends, hence the medical arrangements must be so perfect that the army will have full confidence in them, and will go to battle fortified with the knowledge that everything which is possible will be done for them. It cannot be said that the existing medical organization begets this confidence, but to suggest how it is to be secured is one of the objects of this paper.

The impossibility of removing all the wounded to dressing stations and to the field hospitals on the day of battle has been fully demonstrated; the solution of this question will neither be found in any increase of transport, which is practicable nor in the shifting of responsibility from one department to another which has been frequently advocated but in the adoption of some means of succouring the wounded nearer to the battlefield. While the medical department must be held responsible for the

treatment, the general comfort, and the sanitary environment of the sick by road and by rail the responsibility for the equipage including vehicles, animals, and their attendants and for the general management must remain with the transport department, just as railway officials are held responsible for the railway plant, and trainservice, but the medical department must possess the authority to fix the hours for travelling and the rate of progress, which urgent military necessity alone should be allowed to interfere with, for upon compliance with these instructions the lives of the sick may depend. This is the principle underlying the medical organization of the Japanese Army, which we know is so admirable, it is that special work requires special agents, and that unskilled work may be left to unskilled hands.

The prevention of epidemic diseases in armies is the most important duty of the medical department in war; for the reasons already given the medical history of the South African war will be referred to in support of this statement. The following tables give the total casualties—deaths and invalids—from the beginning of the war up to the 31st of May 1902.*

TABLE I.

DEATHS.	NON-COMMISSIONED OFFICERS AND MEN
Killed in action.....	5,256
Died of wounds.....	1,835
Prisoners who have died in captivity.....	97
Died of disease.....	12,911
Accidental deaths.....	771
Total.....	20,870

TABLE II.

INVALIDS SENT HOME.	NON-COMMISSIONED OFFICERS AND MEN.
Wounded.....	8,221
Sick.....	63,644
Not specified which.....	449
Total.....	72,314

*These tables are extracted from the article: "The Medical Organization of Brigades and of General Hospitals in War" by Brigade Surgeon Lieutenant Colonel William Hill-Climo, M.D., Army Medical Staff (retired), in the December, 1902 number of the *United Service Magazine*.

Practically of the total number of casualties—deaths and invalids—the proportion due to disease, chiefly epidemic, compared with those caused by wounds—was 5 to 1. The two chief diseases which caused military inefficiency during the war were dysentery and enteric fever. The following table gives the admissions and death rates for these diseases during the first two years of the war.*

		PERCENTAGE OF DEATHS TO ADMISSIONS.		
	PERIOD.	ADMISSIONS.	DEATHS.	ADMISSIONS.
For Dysentery	1st Year	11,143	546	4.9
	2nd Year	13,131	427	3.2
For Enteric Fever	1st Year	15,655	3,647	23.2
	2nd Year	15,463	2,530	16.3

The following summary of the facts is taken from this Report, which at the same time shows the relative importance of dysentery and enteric fever.

"During the two years beginning in October, 1899, and ending in September 1901 there were approximately 24,294 cases of dysentery with 973 deaths, while during the same period there were 31,118 cases of enteric fever with 6,172 deaths, which represents for enteric fever alone nearly an army corps."

And again, "The actual number of deaths from enteric fever amounted to more than six and a half times that of dysentery in the first year, and slightly less than six times in the second year."

The evidence of Lord Roberts, the Commander-in-Chief of the South African Army, is to the same effect more especially in regard to enteric fever.†

"I got to Bloemfontein on the 13th of March, and during the first week there were no deaths from enteric; it began in the second, and it continued gradually, very nearly in regular proportion, until about the middle or end of May. The total number of admissions from the 13th of March to the 13th November, 1900, for all cases, was 16,167, and of those 4,667 were enteric cases, roughly speaking. The deaths from all causes were 1,050 and of these 891 were enteric within that time."

(To be continued)

*Report of the Commission on "The Nature, Pathology, Causation and Prevention of Dysentery, and its Relationship to Enteric Fever," appointed by the Secretary of State for War.

†Report of the Royal Commission on the South African War.

Contemporary Comment.

THE RELATIVE SANITARY CONDITION OF DIFFERENT EUROPEAN ARMIES.

TO a recent number of *La Revue*, Dr. Lowenthal has contributed an important article on the sanitary condition of the French and German armies, which deserves more than incidental notice, especially as it helps to throw some light on our English army vital statistics. He points out that in the midst of all the attention which is being devoted to securing perfect armies, it is time that the soldier himself receive attention, and that the "effrayante" mortality and morbidity of the French army should be carefully studied. This view is fortunately making headway. M. de Freycinct has crystalized it in the statement that "la bonne santé d'une armée est la première condition de sa puissance," and the French calamities of 1870 are ascribed in part to the deplorable state of its army and its decimation by infectious diseases, from which the Prussian army was relatively exempt.

An initial difficulty is how to state the extent of the evil numerically in a manner which will be accurate and at the same time comparable with the statistics of other countries. The facts adduced by Dr. Lowenthal indicate that an international agreement should be secured, ensuring that the vital statistics of the chief European armies should be so compiled as to be strictly comparable. Thus the French army statistics are calculated on total numbers, the German on effective numbers; the French statistics include officers with men, the German very wisely do not. But allowing for these sources of error, and for difference in the average age of each army, it is instructive to contrast the experience of the French and German armies. The main results of

this comparison, together with similar comparisons with the experience of the English army are here given. In making this comparison allowance needs to be made for the fact that the French and German armies are conscript, and it is possible that fewer exclusions for initial defects occur in these countries than enlisting for the English army.

In 1846-59 the general death-rate in the French army was 16 per 1,000, in 1901 it was only 5.37 per 1,000. This appears to point to immense improvement, and the view that such improvement has occurred, as in the analogous case of the English army, is unhesitatingly taken by most writers. Dr. Lowenthal has, however, little difficulty in pricking this statistical bubble. Great alterations have occurred in the proportion put on half pay and retired (*les réformes et les retraites pour maladies*). In 1863 these were 6.6, in 1895 they were 28.9 per 1,000. Those who formerly died in the army, now die after being dismissed or retired from it. Until or unless this source of error is eliminated, little stress can be laid on the lowered death rate shown above. That this contention is correct is further indicated by the fact that the morbidity rate has slightly increased, while the death rate has so remarkably declined. Thus it was 587 per 1,000 in 1862-9 and 631 in 1901. We are therefore driven to the conclusion that the greater part at least of the decline in the death-rate of the French army is due to sick men being more frequently retired.

Compare this with the reduction of the death-rate of the British army in the United Kingdom from 11.5 in 1870 to 6.2 per 1,000 in 1901. How much of this is due to real improvement in the conditions of life of the soldier, and how much to changes in length of service and in the system of drafting sick men out of the service? The contrast of the figures for the English and French armies with those for the German army is very striking, the death-rate (not including officers) being in 1901, 5.11 per 1,000 in the French and 2.23 per 1,000 in the German army.

Dr. Lowenthal then proceeds to compare the incidence of special diseases on the French and German armies respectively in the following tables.

ENTERIC FEVER.

	MORBIDITY.	MORTALITY.
	Per 1,000 men.	Per 1,000 men.
French army at home	4.88	0.71
German " "	1.60	0.17
British " "	1.60	0.29

The figures as to small-pox are equally striking.

CASES OF AND DEATHS FROM SMALL-POX.

	CASES.	DEATHS.
French army.....	8,974	739 (in the peri-
German "	16	3) od 1875-01
British "	6	1 in the yr. 1901.

The figures for scarlet fever and diphtheria are also suggestive:

	SCARLET FEVER		DIPHTHERIA.	
	Morbidity	Mortality.	Morbidity	Mortality.
French army	5.98	0.24	2.05	0.08
German "	0.81	0.04	0.59	0.01
British "	4.50	0.03	0.70	0.02

But the most significant figures are those dealing with tuberculosis, and they confirm very strikingly the view that mortality statistics are very misleading as an indication of the true health conditions of an army. During 1877-80 the mean death rate from tuberculosis in the French army was 1.35 per 1,000, in 1901 it was 0.98; but during the same period the morbidity rate from tuberculosis rose from 2.37 to 7.20 per 1,000 an increase of 200 per cent. The real increase is greater than these figures show, for as Dr. Lowenthal points out, an increasing number of tuberculosis patients are eliminated from the army without passing through the hospital. That this is the true explanation is shown by the fact that the number put on half-pay and retired owing to tuberculosis has increased from 2.80 per 1,000 in 1877-87 to 6.91 in 1901.

Although the figures are perhaps not absolutely comparable the following table is most suggestive:

1901: RATES PER 1,000: TUBERCULOSIS.

	Morbidity.	Mortality.	Invalided	Total loss
French army.....	8.30	1.05	8.15	9.20
German "	2.00	0.26	1.51	1.77
British "	4.90	0.71	0.59	1.30

The whole of Dr. Lowenthal's article will well repay study. In view of the figures from which we have made a few extracts, it is not surprising that Dr. Lowenthal concludes that in the present condition of things as to morbidity and mortality, the French army, which ought to be a school of sanitation and hygiene, as it is a school of courage and self denial, constitutes on the contrary one of the most powerful factors for the physical enfeeblement and the depopulation of the country, owing to the excessive amount of sickness and mortality, and above all, owing to the number of moribund persons, of semi-invalids and invalids who leave it year by year.

The whole subject of army statistics needs co-ordination and reorganization. An international agreement is required as to the statistical methods to be pursued, in order that results may be compared. Above all, it is necessary, so far as England is concerned, that optimism should not be allowed to prevail as to the sanitary conditions in which our soldiers and sailors live, that careful investigation should be made and reforms instituted, in order that in the case of our own national forces it shall not be said that men are discharged in large numbers who subsequently become a burden on the community owing to their health having been permanently damaged while engaged in the country's service.
—*British Medical Journal*.

HOSPITAL TRAINS IN RUSSIA.

REGULATIONS concerning the organization of hospital trains have just been issued in Russia. The military hospital train is composed of sixteen cars; six of these are reserved for the sick, and the others constitute a movable hospital, with all the modern conveniences. Each train has three doctors, five assistants, and five sisters of charity, with a certain number of ward attendants. The number of hospital trains is not limited, and such number of trains will be made up as is required by the army, the Red Cross Society, or by any other society. Each train must transport not less than 250 sick and wounded.—S. M. DELOFFRE.

Medico-Military Index.

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THE HONORABLE JAMES MCHENRY,
MILITARY SURGEON AND SECRETARY OF WAR, 1753-1816.

Editorial Expression.

Medico-Military Secretaries of War.

JAMES MCHENRY, MILITARY SURGEON AND
SECRETARY OF WAR.—1753-1816.

VERY rarely has a single individual the pleasure of the intimate friendship of four such men as George Washington, the Marquis de la Fayette, Alexander Hamilton and Benjamin Rush. This distinction fell to the lot of a young Irish doctor, James McHenry, who was born to Daniel and Agnes McHenry at Ballymena, County Antrim, on November 16, 1753. When about eighteen years of age he took a voyage to America for his health and was so charmed with the country that he persuaded his father to come over and engage in business in Baltimore. Young James after passing some time at Newark Academy, a noted Delaware institution, repaired to Philadelphia and engaged in the study of medicine under Benjamin Rush then emerging above the professional horizon as a medical luminary of the first magnitude.

He was fully imbued with the patriotic principles of his preceptor, and when the Revolutionary War broke out, at his own expense journeyed to Cambridge and volunteered his services at the American Hospital. He was not long however without official position, for on August 10, 1776, he was commissioned Surgeon of the Fifth Pennsylvania Battalion commanded by Colonel Robert Magaw and one of the finest organizations in the army. It was barely two weeks later on August 26, that Congress evidently sensible of the desirability of utilizing McHenry's services to the best advantage, adopted the following resolution which Dr. Rush considered did the young medical officer as much honor as if they had made him director of a hospital:

Resolved, that Congress have a proper sense of the merit and services of Doctor McHenry, and recommend it to the directors of the different hospitals belonging to the United States, to appoint Doctor McHenry to the first vacancy that shall happen of surgeon's berth in any of the said hospitals.

McHenry was not yet destined, however, to be employed as a hospital surgeon, for his battalion was for the next three months engaged in operations active enough to satisfy his utmost ambitions and on November 16, 1776 he was taken prisoner with his command at the capitulation of Fort Washington. After a couple of months' confinement he was paroled and compelled to remain idle until early in May 1778, when he was finally exchanged and went on duty as Senior Surgeon of the Flying Hospital.

It was but a few days, however, before he was ordered to headquarters and assigned to duty as Secretary to the Commander-in-Chief, an event which marked the permanent termination of his medical practice. The relations which henceforth existed between the stern and reserved Washington and his brilliant and tactful young aid were cordial in the extreme. This happy relationship continued until 1780, when he was relieved from duty with the Commander-in-Chief and assigned nominally as aide-de-camp but really as guide, philosopher and friend to the youthful and enthusiastic Marquis de la Fayette, who had been commissioned as a Major General in the American establishment. In May 1781, Dr. McHenry was commissioned as Major to date from the preceding October.

In September, 1781, when still with la Fayette before Yorktown, McHenry was elected to the Maryland State Senate, an office which he held for the ensuing six years. Meanwhile he was also elected to Congress of which he was a member from 1783 to 1786. He was a member of the Constitutional Convention of 1786; in 1788 and 1789 he was a member of the General Assembly; and from 1791 to 1795 he again represented his district in the State Senate.

His appointment by Washington in January, 1791, as Secretary of War, however, took him out of state politics and carried him once more into the national arena. The work of the War Department remained in his hands thenceforth through the administration of Washington and on into that of John Adams.

When war with France seemed unavoidable in 1798, he had the supervision of the preparations for the conflict; and here his medical knowledge rendered him of peculiar value to the country, enabling him to speak with authority when he wrote to Congress, that "the Secretary does not discover in any of the Acts the necessary provision for the appointment of hospital officers or a hospital establishment. As military hospitals are indispensable to an army especially in time of war, it is respectfully suggested that provisions on the subject ought to be made by law, and that the regulations to be found in the resolutions of the old Congress, more particularly in those under date of September 30, 1780 and January 3, 1782, as certainly the faithful results of much experience, may afford some important lights respecting this Department. The certain consequences of disregarding so essential a measure in the event of war and the encampment of an army will be a train of diseases which must cut off a large proportion of our troops." The result of this judicious reminder was the act of March 2, 1799 providing for the best medical organization the Army had ever possessed.

The later years of Secretary McHenry's administration were marred by misunderstandings and disagreements with President Adams, largely because of McHenry's attachment to his old friend and comrade in arms, Alexander Hamilton, and on May 13, 1800 the strained relations culminated after a stormy discussion with his chief, in the resignation of his portfolio.

From this time he withdrew from public life and lived quietly upon his estates adjacent to the city of Baltimore, where his services to his state and to his country were worthily commemorated by the neighboring works of Fort McHenry, which have permanently preserved his name in the military annals of the nation, and in which, oddly enough the services of another military medical officer have recently been commemorated by the bestowal of his name upon one of its batteries,—Battery Lazear. Living then in elegant retirement but by no means in idleness, Dr. McHenry survived, a respected and honored citizen of the commonwealth, until his death, May 3, 1816.

THE PREPARATION OF SPECIMENS IN THE ARMY MEDICAL MUSEUM.

IN the JOURNAL for October, 1904, p. 318, is a statement by Dr. Ehrlich of Giessen (translated by Dr. F. H. Garrison of the Army Medical Library) that it seems to me needs to be corrected because if true it would not be altogether creditable to the Museum. The statement is as follows:—"The preparations of tropical diseases also awaken lively interest, but are unfortunately bleaching out, by being kept in alcohol, and have lost their natural colors. I called the attention of the Pathologist to the methods employed in Germany, (*i.e.* Kaiserling's method) of preserving specimens in saline solutions, which it seems are not generally known in America."

As pathologist of the Museum I have no recollection of having met Dr. Ehrlich at the visit he writes about. The tropical specimens he mentions came from the Philippines and have been in Kaiserling ever since they were removed from the bodies. I myself think that considering the circumstances under which they were obtained, the heat, etc., they show color quite well.

I would like to add that the Kaiserling method has been in use at this Museum nearly eight years. It may not be generally known that the method was *intended* for the preservation of specimens *in the dark*. However, this Museum and I think from what I am told and have seen that almost all the Museums in the United States are using this method or some modification of it. Of course a matter of several hundred specimens in more than ten times that number of alcoholic preparations and in a Museum of many more thousand specimens might not be noticed by a casual visitor, but they are there. The historical value of many of these specimens must not be forgotten.

It seems to be necessary to add that there are three classes of wet specimens received at the Museum; one class in which the preliminary preservation has been in a fluid that precludes either keeping the natural color or restoring it after arrival of the specimen at the Museum; in which case it would be useless to take the trouble of the Kaiserling process; a second class in which *embalming* of the body has taken place by the use of a fluid that

partially destroys the natural color, in which case the Kaiserling could do no more than preserve the color as modified by the embalming. The third class includes fresh specimens which naturally are in the minority, and besides may not show much color anyway; but in these the process may be used with expectation of success. There are specimens in the Museum especially lung and brain preparations which I do not think can be surpassed anywhere for beauty of color preservation. All these preparations have passed through my hands. I may remark in passing that the periods of immersion in the Kaiserling process take no account of Sundays or holidays or day or night, as I have often found by the necessity of my looking after it at odd hours; for which reason it is a waste of time to use it unless its use is indicated by the circumstances—D. S. LAMB.

MILITARY SURGERY IN THE RUSSIAN FORCES.

A VERY interesting series of letters by Dr. Hohlbeck of the Russian service has been appearing in the *St. Petersburg Medizinische Wochenschrift*. He reports that the Senn first aid packet is being used with great advantage, the adhesive plaster fastenings combined with the small size of the bullet wounds, reducing the amount of dressing to the minimum, so that one small packet serves for an extraordinary number of wounds. He also finds the rubber gloves recommended by Zoege von Manteuffel, of much advantage in field surgery, where they are carried, each pair sterilized in a separate bag, such as to render them readily available for applying dressings and for operations of all kinds. The shrapnel wounds are the most severe, each bomb containing about 260 shot and inflicting injuries with all the disadvantages of the old lead bullet. Other shells are of comparatively little danger, exploding with such force as to become separated into particles so small as to inflict relatively little damage. The small-arm wounds inflicted by the Japanese rifle are less serious than those of the Lee-Metford or Mauser bullets observed by the writer in the Boer War, even perforating the shaft of a bone without solution of continuity. The chief enemies of the surgeon are the penetrating dust and the swarms of flies everywhere prevalent.

News of the Services.

Medical Inspector F. Anderson, U.S.N., ordered from the *Brooklyn* to waiting orders.

Assistant Surgeon J. W. Backus, U.S.N., ordered from the Portsmouth Naval Hospital to the *Southery*.

Assistant Surgeon R. A. Bachmann, U.S.N., ordered from the *Wilmington* to the *Villalobos*.

Surgeon Charles Edward Banks, P.H.&M.H.S., ordered from Chicago, Ill. to Key West, Fla.

Lieutenant Charles Norton Barney, U.S.A., ordered from Fort Schuyler to the Philippines.

P. A. Surgeon F. L. Bentor, U.S.N., ordered to the Philadelphia Naval Recruiting Station.

Major H. P. Birmingham, U.S.A., ordered to inspect Jackson Barracks and Fort St. Philip.

Assistant Surgeon L. W. Bishop, U.S.N., ordered from the New York Navy Yard to the Portsmouth Naval Hospital.

Lieutenant James Bourke, U.S.A., on temporary duty at the New York Supply Depot.

Lieutenant P. L. Boyer, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Lieutenant Roger Brooke, Jr., U.S.A., relieved from duty in the Philippines, May 12, 1905.

Dr. George R. Clayton, U.S.A., ordered to accompany troops from Columbus Barracks to Fort Sheridan.

Dr. Albion McD. Coffey, U.S.A., ordered from Fort Worden to temporary duty at Fort Lawton.

Medical Director C. H. Cooke, U.S.N., placed upon the retired list.

Lieutenant Charles F. Craig, U.S.A., ordered from the Presidio General Hospital to the Philippines.

Dr. S. Chase de Krafft, U.S.A., ordered to accompany Battalion of Philippine scouts to the inauguration.

P. A. Surgeon C. H. DeLaney, U.S.N., ordered from the *Petrel* to the *Marblehead*.

Lieutenant Samuel M. DeLoffre, U.S.A., granted one month's leave.

Dr. Clarence F. Dickenson, U.S.A., ordered to Fort Logan, Colo.

Lieutenant Charles W. Farr, U.S.A., ordered from Fort Mason to the transport *Thomas* and to duty in the Philippines.

Lieutenant Peter C. Field, U.S.A., ordered from Fort Robinson to the Philippines.

Assistant Surgeon T. G. Foster, U.S.N., ordered to the Norfolk Navy Hospital.

A. A. Surgeon J. B. Fowler, P.H.&M.H.S., granted thirty days leave.

P. A. Surgeon L. D. Fricks, P.H.&M.H.S., ordered from Guayaquil, Ecuador, to the Immigration Depot, New York, N.Y.

P. A. Surgeon P. M. Furlong, U.S.N., ordered from the *New York* to waiting orders.

P. A. Surgeon C. H. Gardner, P.H.&M.H.S., ordered from Key West, Fla., to Galveston, Texas.

COMPANY A, HOSPITAL CORPS U.S. ARMY.—The accompanying illustration shows the Washington Company of the Army Hospital Corps at inspection. This Company is doing most excellent work under the command of Lieutenant Harry L. Gilchrist, Medical Department, U.S. Army.



Colonel Alfred C. Girard, U.S.A., will be retired on April 6 with the rank of Brigadier General. Colonel Girard was one of the first members of the Association of Military Surgeons, was one of the Committee which designed its badge, and has been invariably constant in his friendship for the organization, which extends to him its most cordial congratulations upon his appointment as Brigadier General prior to his retirement from the service,—a promotion which his eminent services to his country and to the medical profession most heartily justify.

Lieutenant George H. R. Gosman, U.S.A., ordered from Fort Caswell to the Philippines.

Captain Joseph A. Hall, O.N.G., has been detailed as a member of the personal staff of Governor Herrick of Ohio.

Lieutenant James F. Hall, U.S.A., relieved from duty in the Philippines, May 26, 1905.

Dr. Francis A. Halliday, U.S.A., ordered from Fort McPherson to Fort Caswell.

Lieutenant P. S. Halloran, U.S.A., relieved from duty in the Philippines-May 12, 1905.

Lieutenant George P. Heard, U.S.A., relieved from duty in the Philippines, May 26, 1905.

P. A. Surgeon V. G. Heiser, P.H.&M.H.S., appointed Health Commissioner of the Philippine Islands, in addition to duty as Chief Quarantine Officer.

Captain William Hendry, O.N.G., was killed on March 3, 1905, by a railroad accident while accompanying the Engineer Corps of his state to the inauguration of President Roosevelt. Captain Hendry had been a member of the Association since 1901.

Lieutenant Park Howell, U.S.A., ordered from Fort McPherson to Manila, P. I., accompanying the 16th Infantry.

Dr. Preston S. Kellogg, U.S.A., returned to Fort Robinson from temporary duty at Fort Crook.

Dr. Preston S. Kellogg, U.S.A., ordered to accompany the 6th Cavalry to the Philippine Islands and to report for duty there.

P. A. Surgeon D. B. Kerr, U.S.N., ordered from the *Buffalo* to the *Boston*.

Dr. H. Newton Kierulff, U.S.A., ordered from the Presidio to the transport *Buford*.

Lieutenant C. E. Koerper, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Dr. Robert Lemmon, U.S.A., ordered from Fort Wadsworth to temporary duty at Fort Schuyler and upon its completion to Fort McKinley.

A. A. Surgeon Esteban Lopez, P.H.&M.H.S., granted one month's leave.

Assistant Surgeon J. D. Manchester, U.S.N., ordered from the *Marblehead* to the *Petrel*.

Dr. Marion F. Marvin, U.S.A., relieved from duty in the Philippines and ordered to Fort Robinson.

Assistant Surgeon R. H. Michels, U.S.N., ordered from the *Villaloñas* to the *Wilmington*.

Assistant Surgeon J. Miller, Jr., U.S.N., ordered from the *Boston* to the *Buffalo*.

Lieutenant A. W. Morse, U.S.A., granted one month's leave.

Lieutenant A. W. Morse, U.S.A., ordered from Vancouver Barracks to accompany the 19th Infantry to Manila where he will report for duty.

Lieutenant John A. Murtagh, U.S.A., ordered from the transport *Thomas* to Fort Mason, Cal. and as attending surgeon and examiner of recruits in San Francisco.

Surgeon F. S. Nash, U.S.N., promoted to Surgeon.

Lieutenant Kent Nelson, U.S.A., relieved from duty in the Philippines, May 26, 1905.

Surgeon O. D. Norton, U.S.N., ordered to the *Olympia*.

Lieutenant R. P. O'Connor, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Lieutenant R. U. Patterson, U.S.A., relieved from duty in the Philippines, May 12, 1905.

P. A. Surgeon J. H. Payne, U.S.N., ordered to the *Pennsylvania*.

Lieutenant James M. Phalen, U.S.N., relieved from duty in the Philippines, May 26, 1905.

Lieutenant R. H. Pierson, U.S.A. granted forty days leave of absence.

Captain William W. Quinton, U.S.A., relieved from duty in the Philippines, May 26, 1905.

Lieutenant Charles Ragan, U.S.A. relieved from duty in the Philippines, May 26, 1905.

Lieutenant John J. Reilly, U.S.A., granted six months sick leave.

Lieutenant William A. Reno, U.S.A., assigned to temporary duty on the transport *Sumner*.

P. A. Surgeon S. S. Rodman, U.S.N., ordered from the *Pensacola* to the *Ranger*.

Surgeon G. Rothganger, U.S.N., ordered to the Norfolk Naval Hospital.

Lieutenant E. L. Ruffner, U.S.A., relieved from duty in the Philippines. May 26, 1905.

A. A. Surgeon L. H. Schwerin, U.S.N., detached from the *Abarenda* and placed on waiting orders.

A. A. Surgeon L. H. Schwerin, U.S.N., ordered to the *Hancock*.

Dr. J. E. Shellenberger, U.S.A., returned from Jackson Barracks to Fort Sam Houston.

Major Paul Shillock, U.S.A., granted one month and a half leave.

Surgeon G. T. Smith, U.S.N., ordered from the Norfolk Naval Hospital to waiting orders.

Lieutenant Herbert M. Smith, U.S.A., ordered from the transport *Sherman* to the Presidio General Hospital.

Surgeon J. M. Steele, U.S.N., ordered from the *Olympia* to the *Brooklyn*.

Captain John H. Stone, U.S.A., granted four months leave.

Assistant Surgeon E. C. Taylor, U.S.N., ordered from the *Bancroft* to the *Colorado*.

Dr. Elmer S. Tenney, U.S.A., ordered from Allston, Mass. to Fort Strong.

Dr. Charles W. Thorp, U.S.A., ordered from Fort Ethan Allen to temporary duty at Fort Adams.

Major Charles S. Turnbull, N.G. Pa., announces the marriage of his daughter, Miss Elizabeth Turnbull, to Lieutenant Hamilton Disston South, U.S.M.C., who has been ordered to take command of the Marine Forces at the Agana Naval Station.

Surgeon C. P. Wertenbaker, P.H. & M.H.S., ordered to duty in the office of the U.S. Consul General, Havana, Cuba.

Major Joseph B. Whiting, Jr., W.N.G., a veteran of the Spanish-American War, and long a member of the Association of Military Surgeons, died suddenly at his home in Janesville, Wis., on February 19, 1905.

Lieutenant E. R. Whitmore, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Captain William H. Wilson, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Captain William H. Wilson, U.S.A., granted four months leave.

Lieutenant William P. Woodall, U.S.A., relieved from duty in the Philippines, May 26, 1905.

Dr. Stephen Wythe, U.S.A., ordered from Fort Baker to Angel Island.

HOW TO LIVE.—A strictly ethical and scientific journal of popular medicine, under the title of *How to Live*, is issued by the George F. Butler Publishing Company of Ravenswood Station, Chicago. Such a publication has been greatly needed, and this one has our best wishes for its success.

FAILURE OF THE ARMY MEDICAL BILL.—The last number of the JOURNAL had hardly been issued when the failure of the Army Medical Bill was announced, because of the determination of Speaker Cannon not to permit a vote upon any measure which should carry an increased appropriation. It will be brought up again at the next session and, it is anticipated, will then soon become law.

THE AMERICAN AND JAPANESE ARMY MEDICAL DEPARTMENTS.—In our last number we credited an exceptionally appreciative and intelligent statement of the merits of the American Army Medical Corps to the Baltimore *Sun*, an error all the more inexcusable since the Baltimore *Sun's* statement was of a directly contrary kind. The correct credit should have been assigned to the *Army and Navy Journal*, the distinguished editor of which has always maintained the most accurate and courteous attitude toward the American Army Medical Department.

HYGIENIC CONDITIONS IN MANCHURIA.—A note from Colonel Havard, who had reached Harbin, remarks that, "Manchuria seems to be a very healthy country, being free from malaria and other endemic diseases. At all events there is a remarkably small ratio of sickness among the Russian troops, and whether this is due to any unusual and exceptional hygienic precautions by our confreres of the Russian Army remains to be investigated." Since writing the above, Colonel Havard has been taken prisoner at Mukden and will be returned to the United States, leaving this country without a medico-military representative among the forces of Russia.

Current Literature.

TYPHOID FEVER IN THE SPANISH-AMERICAN WAR.*

THIS monumental work marks an epoch in the study of camp diseases. Its completeness and thoroughness is worthy of the highest commendation and its conclusions are consequently the most authoritative in the history of enteric fever. The work of investigation was made by the entire Board, whose visits are remembered with great interest by the medical officers who served in the United States military camps in 1898. The general conclusions were published several years ago and are familiar to students of military medicine who are now favored with the unabridged details upon which those conclusions were founded.

KELLY ON THE APPENDIX.†

IN the magnificent work of Kelly the medical monograph has reached the high water mark. For thoroughness, lucidity and completeness, it surpasses any work of the kind that has come under the writer's notice. This is well justified by the important position which appendicitis now holds in the work of the profession. The history, anatomy, physiology, bacteriology and pathology are taken up in great detail. The clinical history, etiology, diagnosis and complications receive full and careful consideration. The operation in its various forms is described with

**Report on the Origin and Spread of Typhoid Fever in the United States Military Camps During the Spanish War in 1898.* By Majors WALTER REED, VICTOR C. VAUGHAN and EDWARD O. SHAKESPEARE. Prepared in accordance with Act of Congress under the direction of Surgeon General Robert M. O'Reilly, U.S.A. Vol. 1; 4to.; pp. 721. Vol. 2. Maps and Charts. Folio; pp. 400. Washington. Government Printing Office, 1904.

†*The Vermiform Appendix and Its Diseases.* By HOWARD A. KELLY, M.D. and E. HURDON, M.D. Imp. 8vo; pp. 827, with 399 original illustrations, some in colors, and three lithographic plates. Philadelphia and London, W. B. Saunders & Co., 1905.

the minutest detail. The after-history and intercurrent accidents are gone over with much care,—and the whole forms a work so useful as to adapt it, not only to the surgical specialist, but to the work of every practitioner. In the matter of illustration it is the most sumptuous work issued from the medical press since the days of Spigelius, Bidloo and Cowper. The limitation of the size of the page has not been considered, folders having been provided wherever the size of the illustration transcends that of the page. The typography and mechanical execution of the work is unexceptionable and both the authors, the publishers, and the medical profession are to be congratulated upon the result.

INTERNATIONAL CLINICS.*

THE fine series of practical medical and surgical studies, published quarterly under the title of International Clinics, continues in the fourth volume of the fourteenth series to sustain the reputation achieved by earlier issues. The present volume presents much that is of interest and value to the active practitioner and may well form an important element of his armamentarium.

A BOOK ABOUT DOCTORS.†

THE editor of the Doctor's Recreation Series has placed the public under deep obligations to him by the inclusion of Jeaffreson's Book about Doctors in that series. The work is written in a chatty and attractive style and contains a great deal of genuine historical value as well as much of gossip interest, and many an hour may well be taken up in the perusal of its fascinating pages.

**International Clinics*. Edited by A. O. J. KELLY, M.D. Fourteenth series. Volume 4. 8vo; pp. 314. With numerous illustrations. Philadelphia. J. B. Lippincott Co.; 1905.

†*A Book About Doctors*. By JOHN CORDY JEAFFRESON. Vol. IV of the Doctor's Recreation Series. 8vo; pp. 512, with 4 plates. Akron, Ohio. The Saalfield Publishing Co., 1905.

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

THE NAVAL AND MILITARY MEDICAL OFFICER.*

By THE HONORABLE THEODORE ROOSEVELT.

PRESIDENT OF THE UNITED STATES OF AMERICA AND COMMAND-
ER-IN-CHIEF OF THE AMERICAN ARMY AND NAVY.

NAVAL medical officers represent two professions, for they are members of the great medical body and they are also officers of the navy of the United States and therefore have a double standard of honor up to which to live. I think that all of us laymen, men and women, have a peculiar appreciation of what a doctor means, for I do not suppose there is one of us who does not feel that the family doctor stands in a position of close intimacy, in a position of obligation under which one is happy to rest to an extent that hardly any one else can stand, and those of us—I think most of us—who are fortunate enough to have a family doctor who is a beloved and intimate friend, realize that there can be few closer ties of intimacy and affection in the world.

And while, of course, even the greatest and best doctors cannot assume that very intimate relation with more than a certain number of people, it is to be said, I think, that more than any other man, except a few clergymen, the doctor does commonly assume that relation to many people. While nevertheless it is impossible that that relation shall obtain between a doctor and more than a certain number of people, still with every patient with whom the doctor is thrown at all intimately he has that relation to a greater or less extent. And the effect that the doctor has upon the body of the patient is in a great number of

* Address to the graduating class of the Naval Medical School, Washington, March 25, 1905.

cases no greater than the effect that he has, upon the patient's mind.

Each one of you here has resting upon him not only a great responsibility for the care of the body of the officer and enlisted man but also a care which ought not to be too consciously felt, for the man's spirit and the morale of the entire ship's company, of the entire body of men with which you are to be thrown, will be sensibly effected by the way in which each of you does his duty.

Just as the great doctor, the man who stands high in his profession in any city, counts as one of the most valuable assets in that city's civic work, so in the navy or the army the effect of having thoroughly well-trained men with a high and sensitive standard of professional honor and professional duty is well-nigh incalculable upon the service itself. I want you now, as you graduate, to feel that on your shoulders rests a great weight of responsibility, that your position is one of high honor and that you hold it under penalty of incurring the severest reprobation if you fail to live up to its requirements.

I am not competent to speak save in the most general terms of your professional duties. I do want, however, to call your attention to one or two features connected with them. In the first place: In connection with the work you do for the service you have certain peculiar advantages in doing work that will be felt for the whole profession. For instance, it will come to your lot to deal peculiarly with certain types of tropical diseases. You will have to deal with them as no ordinary American doctor, no matter how great his experience, will have to deal with them, and you should fit yourselves by most careful study and preparation so that you shall not only be able to grapple with cases as they come up, but in grappling with them to make and record observations upon them that will be of permanent value to your fellows in civil life.

You can there do what no civilian doctor can possibly do. There probably is not a branch of the profession into which, during your career, you will not have to go; no type of disease that you will not have to treat. But there are certain diseases

that you will have to treat that the ordinary man who stays at home, of course, does not, and it is of consequence to the entire medical profession that you should so fit yourself by study, by preparation, that you shall not only be able to deal with those cases, but to deal with them in a way that will be of advantage to your stay-at-home brethren.

There is one other point: Every effort should, of course, be made to provide you with ample means to do your work. Every effort ought to be made to persuade the national legislature to take that view of the situation; to remember that in case of war it is out of the question to improvise a great medical service for the army and navy. The needed increase is more keenly felt in the army than in the navy, because it is always the army that undergoes the greatest expansion. But it is felt in both services.

And when, as is perfectly certain to be the case if a war comes for which we have no greater preparation than at present we have made; if, as is perfectly certain to be the case, there is fever in the camps, if there is trouble among the volunteer forces, it is foolish to the greatest degree for the public men and especially for the public press, to complain and shriek over the people who happen to be in power at that time. Let them shriek, or rather do not let them shriek at all, for shrieking is a sign of hysteria, but let them solemnly think over and repent of the fact that they have not made their representatives provide adequately in advance for the medical system in its personnel and its material and its organization and physical instruments necessary to make that organization into an effective organization, which alone, if prepared in advance, will obviate the trouble which otherwise is certain to come if we have a war.

Let them remember not to blame the people in power when the breakdown comes, but blame themselves, the people of the United States, because they have not had the forethought to take the steps in advance which will prevent that breakdown occurring. Means ought to be provided. That is part of our duty. If we fail in it then it is our responsibility, not yours. But—and this I want to impress with all the strength that in me lies—

upon every medical man, in either the army or the navy, remember always in any time of crisis the chances are that you will have to work with imperfect implements. And you can form a pretty good test of your worth,—if you sit down and say you could have done good work if only you had had the right implements to work with, you will show your unfitness for your position.

Your business then will be to do the very best you can do if you have got nothing in the world but a jackknife to do it with. Keep before your minds all the time that when the crisis occurs it is almost sure to be the case that you will have to do no small part of your work with makeshifts, to do it, as I myself saw it done at Santiago, by the army physicians, roughly and hastily and with but one-fourth or one-fifth of the appliances that they would expect normally to have, and then, as I say, make up your mind that while you have done all you can to get the best material together in advance that you will not put forward the lack of that material, as an excuse for not doing all the work you had to do, upon the imperfect tools. Make it a matter of pride to get the best possible use out of them.

I am sure that all of us outsiders here realize the weight of responsibility resting upon those who now join the great and honorable body of men who in the navy and in the army have by their action upheld not only the standard of honor of the medical profession, but the standard of honor of the officers of the army and the navy of the United States.

I greet you on your entrance into the service. I welcome you as servants of the nation and I wish you every success in the great and honorable calling which you have chosen as yours.



THE MEDICAL CORPS OF THE UNITED STATES
NAVY,—SOME DETAILS RESPECTING ITS
PAST AND PRESENT.

By JAMES NEVINS HYDE, M.D.

CHICAGO, ILL.

LATE PASSED ASSISTANT SURGEON IN THE UNITED STATES NAVY.

THE evolution of the military surgeon resembles, in a measure, that of his colleague in civil life. The operations of the latter began with the excursions of the barber from the brass basin beneath the chin and the razor playing above it; while he who first succored the fallen in battle was the warrior who laid aside spear and shield to devote himself for the moment to the needs of his wounded comrade. According to Homer, the sons of Æsculapius were both fighters and physicians; and it appears that Caesar exempted from taxation the soldiers of his Legions who were capable of dressing the wounds which had not been sucked and otherwise cared for by women. It is a far cry from these early crudities to the time of Henry IV of France, none of whose achievements in the field is worthy a moment's comparison with the splendid fruit of his encouragement of medical science. Macaulay should have added a verse to his familiar lines describing the oriflamme of the Béarnais, in order to award proper meed of praise to the prince who founded the superb St. Louis Hospital in Paris, and who introduced to the world the immortal Paré, brave enough, after centuries had covered up the exploit, to ligate an artery instead of searing it with a hot iron. Paré and his colleagues of that day operated, it is true, with their hats on, their peaked beards projecting above their stiff jerkins; they enjoyed no military rank; they devoted themselves to the care of the chief captains of the army, leaving the soldier in the ranks to fare as best he might; but they were none the less truly great. Baron Larrey, John Hunter, and Guthrie all had illustrated the value of the surgeon on the field

of battle before they transmitted their precious lore of surgical traditions to the physicians who sprang to their honorable task when the Minute Men of Lexington sounded the reveillé for the initial military movement in the country that was to be later the United States of America.

Naturally enough, in this crisis the army received first attention, and its medical staff almost immediately after. As early as May 8th, 1775, the Congress of Massachusetts Bay had appointed a committee to examine applicants for the position of surgeon in the army, and the tests they established in anatomy, physiology, surgery, and medicine were sufficiently severe to exclude six of sixteen candidates. Soon after, four hospitals were provided, one for the care of smallpox patients. Dr. Isaac Foster was made Deputy Director-General. Each regiment was to have one surgeon and two surgeon's mates. These titles in the British service were adopted in the medical departments of both the army and the navy. The word "mate" is unquestionably nautical in origin, a legacy from our maritime forefathers of the island on the other side of the Atlantic, one of whose later poets has written: "There's never a flood goes shoreward but lifts a keel we manned."

The newly created military surgeons, however, were not alone in ministering to the wounded of both sides after the battle of Bunker Hill. Lieutenant Clarke, of the enemy's marines, who wrote exclusively from the British point of view, declared that "all the physicians, surgeons, and apothecaries of Boston attended the wounded officers [of the British army], and gave them every assistance in their power." These volunteers were to furnish the first contingent of medical men for both the army and the navy that were in course of creation.

It was not until the following October that the Continental Congress ordered its first naval armament. The Act of January 6th, 1776, allotted certain surgeons and surgeon's mates to each vessel, the pay of the former ranging from twenty-one and one-third to twenty-five dollars per month, that of the surgeon's mates being two-fifths less. These were doubtless the Spanish milled dollars, the value of which varied in almost every part of

the country. The number of surgeons and surgeon's mates allotted to each vessel was proportioned to the size of her fighting battery. It was not until the year 1821 that the "surgeon's mate" was succeeded by the "assistant surgeon" of our own day. On September 30th, 1776, the Congress resolved: "That it be recommended to Legislatures of the United States to appoint gentlemen in their respective States skillful in physic and surgery to examine those who offer to serve as surgeon or surgeon's mate in the army and navy; and that no surgeon hereafter receive a commission or warrant in the army or navy who shall not produce a certificate from some one of the examiners so to be appointed, to prove that he is qualified to execute his office." Medical Director Bradley points out that actual examinations for these positions in the naval service were not ordered until the year 1777; and that commissions and warrants, at first from officers of ships, later from the Naval Committee, were for employment chiefly on a single vessel of war, the agreement ceasing when that vessel was placed out of commission or destroyed. The plan was, without doubt, primitive, but it seems to have worked well at the time.

It is well known that the first American man-of-war to hoist the national flag was the *Alfred*, in Philadelphia. Her medical officer, Joseph Harrison, is perhaps entitled to the distinction of being the first on the list of naval surgeons of the United States.

Certainly the name of Ezra Green also should appear among those of the men earliest constituting the medical corps of the United States Navy. Viewed from every point, he was a worthy predecessor of the distinguished officers who have succeeded him. He was born in 1746, was graduated at Harvard College in 1765, and afterward studied medicine with Dr. Sprague, of Malden, and Dr. Fiske, of Newburyport, Mass., securing thus the best medical education then attainable in his part of the country. He engaged in the practice of medicine in Dover, N. H., and acquired an experience which was of value to him in his subsequent military career. He first served on the medical staff of the army, but in October, 1777, was commissioned surgeon of the Continental sloop-of-war *Ranger*, under Captain John Paul Jones. He then left a young wife, to whom he had been married but a few

months, in order to serve his country in discharging the duties of his profession. Surgeon Green accompanied the *Ranger* throughout her memorable cruise, acting both as her medical officer and purser; met the young Marquis of LaFayette and Benjamin Franklin, Minister Plenipotentiary to the French court, when these two famous men visited Captain Paul Jones while his ship



Ezra Green, M.D., Surgeon of the Continental Sloop-of-War "*Ranger*,"
John Paul Jones, Captain.

lay at anchor in the harbor of Brest; and heard the French fleet in that same harbor thunder the first salute ever offered to the American flag. He cared for the wounded in the memorable fight of the *Ranger* with the *Drake*, when the latter lowered her colors to the Yankee vessel, which the English in that day

insisted was a piratical craft; and with his brother officers ran the risk of being hanged as pirates if they had been captured. Surgeon Green kept a faithful diary of all that occurred during this eventful cruise, probably little dreaming that its pages would ever be spread before other eyes than his own. Nearly one hundred years were to pass before its leaves, yellow with age, were to be reproduced in print and honored with an accompanying sketch of his life by Commodore Preble.

Surgeon Green illustrated in his person the truth of the statement made by Lieutenant Clarke of the British Marines in his "Impartial and Authentic Narrative," to the effect that "their [our] men in general are very robust and larger than the English." Surgeon Green was six feet and three inches in height, and finely proportioned. He had the genial and amiable expression and the classical features of General Washington, for whom, on several occasions, he was mistaken when serving in the army.

Captain Jones' next cruise was on the *Bonne Homme Richard*, which was christened in honor of Benjamin Franklin, a name which ever reminds the student of colonial literature of "Poor Richard's Almanac." His surgeon was Lawrence Brooks, who cared for the wounded in the dreadful carnage which occurred during the fight of his vessel with the *Scrapis*, when the latter was captured. Surgeon Brooks received as prize money for his part in the capture \$141.41. By the Act of the Congress appropriating this sum of money, Amos Winship the surgeon of the *Alliance*, and Samuel Guild, surgeon's mate, received respectively \$189.14 and \$79.58. The prize money awarded officers and men in that day was a valuable possibility for those dependent upon the slender pay offered by the Navy.

The thoroughly trained military surgeon of our own day may be tempted to look with something akin to pity upon the equipment and resources of the early representatives of his profession in the services; and yet the latter could and did accomplish much. Of course, they knew nothing of the Czerny-Lembert suture, of the ureteral probe, or of the capability of intra-cranial pressure to dislodge a tumor after its localization and release in two

operations. The entire technique of asepsis was then a sealed book. Yet the estimate given by Surgeon General Senn, after observation of the work done by his colleagues on four continents, was as true in their day as in ours. "The average American surgeon," he writes, "is resourceful, quick and determined in the selection and use of appropriate therapeutic resources, and eminently practical. He is peculiarly well fitted for emergency work; and performs the most difficult task with the simplest means and appliances."

The naval surgeon of the Revolutionary War, when properly provided, carried in his pocket-case lancet, scissors, forceps, razor, scalpels, bistouries, probes (then generally called "sounds"), caustics, and caustic-holders, an emergency outfit not to be despised for a practical and well-trained hand. De Garengot, half a century before, had published a list of instruments employed in surgery, which, with respect to the number of the latter, vies with the catalogues of modern cutlers. Beside the tools enumerated above for the pocket-case, he furnishes illustrations of directors in many sizes and shapes; canulas; specula for the several body-cavities; splints of all sorts; apparatus for lithotomy, for cataract-removal, and for trephining; tourniquets, bougies, and a large variety of lancets, needles, needle-holders, and other instruments. Though often clumsily fashioned, and, with their broad backs and solid blades, lacking the elegance in construction of modern tools, they were unmistakeably serviceable. And yet, even two hundred years before De Garengot's day, Master Jherome, in his quaint black letter volume, illustrated in figures the use of splints (which were made, however, to completely encircle the limb), and of the trephine, which, it must be admitted, in his pages bears a striking resemblance to the mechanism of a quartz-crusher!

Doubtless, the most of the naval surgeons of the Revolutionary period were possessed of the single volume published in Philadelphia in 1776, which contained Van Swieten on the "Diseases Incident to Armies;" Ranby on "Gunshot Wounds;" and Northcote on "Naval Surgery," together with the second edition of Jones' "Practical Remarks." The London translation of Astruc

on "Venereal Disease" had been published in 1737, a truly remarkable work, considering the confusion of knowledge at that period respecting the subject. Laurence Heister's "General System of Surgery" had been published in London in the year 1759. A medical treatise in that day was not wholly obsolete in its twentieth year! Later writers have laughed over one of Heister's plates representing the amputation, or, better, removal of a toe with a mallet and chisel; but his work, none the less, was an exceedingly valuable textbook for the surgeon, embodying, as it did, all that was known and taught respecting minor and capital operations. The use of the tent, of the compress, of the ligature in flax, hemp, and silk, are thoroughly explained by the author. In the art of bandaging he was a master. The purpose of all the instruments named and employed by De Garengeot and his contemporaries, together with many others, is amply demonstrated. There is much less to excite ridicule in that part of the text assigned to strictly surgical manœuvres than in the lines devoted to medicinal management of cases, in which are described the "unguentum Ægyptiacum," the "vulnerary balsam," and the "balsamum Samaritanum." Quinine they had not; cinchona bark they utilized freely, though it was difficult to obtain in ample quantities, and was frequently replaced by infusions of dogwood.

They inoculated for smallpox, a disease with which they were constantly confronted, vaccination not having been introduced before 1798, Surgeon Green himself had been inoculated in this way before entering the service. The itch abounded in both ship and camp. They had no ice for their patients or for themselves. They bled for a large number of ailments, even for gunshot wounds of the chest. They feared to administer water in fevers; and the food for the sick at sea would have roused the gorge of any save the men of a day who were accustomed to what Phillips Brooks has well called "the uncushioned contacts of life." In the way of provisions, they carried salt pork, corned beef, and salt fish, with dried apples, ship-biscuit, rice, molasses, butter, and a few dessicated vegetables. There were no canned or tinned goods of any kind. Of course, they were provided

with rum. The grog-ration of the navy was not abolished until 1862.

This picture, viewed through the perspective of a century, admittedly is tinted with sombre colors and against a dark background. It is, however, somewhat comforting to suppose that the figures drawn in it with the ready pencil of McMaster were those of the doctors of the country-side, rather than of the city-bred men who succeeded in passing the service examinations. Just as silver-plate shone on the generous table of John Hancock, while the rustic ate from boards covered with the coarsest ware, so it may well be believed that there were in the same day physicians who had actually dissected a human body, and who had not limited their experience to "wiring skeletons, pounding drugs in a china mortar, and administering mercury until the lips turned blue and the gums fell away from the teeth." For in the year 1762, Dr. William Shippen, Jr., had given courses of lectures on practical anatomy, which were not interrupted until the War of the Revolution, with an annual number of between thirty and forty students in attendance. Dr. Shippen had been a pupil of John Hunter in London, and was later Director-General of the Army Hospitals. Dr. John Morgan, a Fellow of the Royal Society, who had served as a medical officer in the wars with France, again became a military surgeon on the outbreak of the war. The medical department of King's College, New York, had been organized in 1767, and its opportunities were open to the student of medicine and surgery.

There is some question respecting the dress of the early officers of the navy, both of the line and staff. At the outset, without question, uniforms were few and these often garments suggesting rank merely in one of several particulars. Every student of American history knows that Braddock was defeated by an army of men in their shirt-sleeves. It has been asserted that "no American officer or soldier engaged in action at Bunker Hill wore any uniform," and yet Lieutenant Clarke, of the English marines, positively asserts that he saw a British private rifle the body of Dr. Warren, and that the latter wore a "light-colored coat, with a white satin waistcoat laced with silver, and white

breeches with silver loops." It will be remembered that Dr. Warren at this time was serving not as a surgeon but as an officer of the line.

The uniform of naval officers recommended by the Massachusetts Government in 1776 was a green coat with white facings. Before the Revolutionary War, it is said that the Massachusetts troops in the Louisbourg campaign wore the red coat of the British soldier. When the United States Government first prescribed a uniform for naval officers, it included a blue coat with red facings, a red waistcoat, blue breeches, and yellow buttons. Portraits of officers of the navy at this period invariably represent them with the hair queued and powdered, their faces clean shaven. The order to cut the hair was not promulgated until the beginning of the next century.

The naval surgeon conformed as well as might be to the dress of his brother officers. His breeches were fastened at the knee with a buckle, and his feet usually were encased in shoes, though boots of the sort early called "Hessians" occasionally were worn. The surgeon's patients before the mast wore cheap stockings reaching to the knee, the breeches being sometimes fastened about them, at other times rolled back, and in yet others worn quite loose, giving the effect of the nether garments of some of the modern track athletes of the universities.

The first official list of officers of the Navy and Marine Corps was made out in 1794, by order of General Knox, for transmittal to General Washington, the navy and army being then under one administration, that of the Secretary of War. This list contains only the names of captains, commanders, and lieutenants. In 1800, Charles W. Goldsborough, Chief Clerk of the Navy Department, 1798 to 1813, and afterwards Secretary to the Board of Commissioners of the Navy, a sort of general staff or advisory board, published a register of officers and ships of the navy. He gives the names of thirty-five surgeons and twenty-eight surgeon's mates. Three of these were noted as "without pay."

In 1795, the depredations of the Algerines on American commerce, and the imprisonment of many merchant seamen, forced the Congress to re-establish the navy for the protection of Americans

in the Mediterranean. Its former vessels had been sold and its officers disbanded. The building of four ships of forty-four guns and two of thirty-six guns each was authorized in 1794. In addition to other officers, a surgeon was to be appointed for each ship, with two surgeon's mates for the larger and one for the smaller. The pay and subsistence were fixed for the surgeons at \$50 per month and two rations daily; for the surgeon's mates at \$30 per month and the same number of rations. The ration specified for each day, that of Sunday being somewhat more ample, was one pound of bread, one and one-half pounds of beef, one-half pint of rice, and one-half pint of distilled spirits or one quart of beer daily for each man. Molasses or cheese was added on some days and pudding on others. On Friday there was an allowance of salt fish and butter or oil.

At a later date the *Ganges* was fitting out under the command of Captain Thomas Tingey, who appears to have himself appointed its officers. In a letter dated December 9th, 1798, he writes to Dr. John Rush, Surgeon of the *Ganges*: "Having received information that several of the crew are sick and without medical aid, it is therefore highly incumbent on you that you repair on board immediately; and I most seriously request that you lose no time in getting on board. The ship will weigh in less than an hour." Captain Tingey, "off St. Kitt's, July 26th, 1799," informs the Secretary that "Dr. Rush, of the *Ganges*, intending to relinquish his profession on his appointment to a lieutenancy, has requested to return home," and, "as Mr. Hughes appears a very capable man, I have assented thereto." Mr. Hughes was appointed Surgeon's Mate upon the sailing of the *Ganges* from the United States.

In the regulations for the government of the Navy, 1798, it is prescribed that "a convenient place be set apart for sick or hurt men, to which they are to be removed with their hammocks and bedding when the surgeon advise shall the same, and some of the crew appointed to attend them."

The names of Isaac Henry, Surgeon, and John Murdaugh, Surgeon's Mate, appear in the list of names of officers of the *Constellation* in her famous fights of 1799 and 1800, and are among those to be "properly noticed by the President."

Congress passed a Pension Act in 1795. The list of pensioners in the Navy Establishment for 1802 contains the name of only one medical officer, Surgeon's Mate Edward Field, who entered the service from Rhode Island in 1799.

With the Peace Establishment of the Navy, November 17th, 1800, the number of surgeons and surgeon's mates was reduced to seventeen and twenty-seven respectively. The ships retained in the navy were required to be constantly employed, and the limited number of officers was kept correspondingly active.

The uniform for surgeons and surgeon's mates given in the Register for 1802 was, for full dress, as follows: Surgeons—coat of blue cloth, long lapel and lining of same, nine navy buttons, with gold frogs on lapels, standing collar same as coat, and two frogs on each side of the collar. Three navy buttons below the pockets, three gold frogs on pocket flaps, and same number of navy buttons to the cuffs with gold frogs. Vest and breeches white, with navy buttons. Cocked hat. Surgeon's mate to be the same as the surgeon, except the button holes for the nine buttons were to be "worked with gold thread; two buttons on collar and a slip of gold lace; slashed sleeves with three buttons and three buttons on pockets. Vest and breeches white and plain."

Dr. Louis Herman was surgeon's mate of the *Chesapeake* when that vessel was the flagship of Commodore R. V. Morris, sailing for the Mediterranean April 27th, 1802. He was transferred later, as its surgeon, to the *Enterprise* and was one of the officers volunteering for the attempt made by Decatur to cut out and burn the *Philadelphia*. Decatur wished to place his surgeon on the brig, which was designed to remain outside of the harbor and out of danger; but Herman, while submitting himself to the orders of his superior officer, begged permission to accompany the expedition, where his professional services would almost certainly be required and where, he believed, he might save valuable lives. Herman, accordingly, was placed in full command of the ketch, with a crew of seven men, and instructed to give no quarter if boarded by the Turks. These orders were faithfully executed by the gallant surgeon in com-

mand, who was later commended by Decatur in his official report for his honorable share in the issue.

Surgeon Thomas Harris, in his "Life of Commodore Bainbridge," gives the names of John Ridgely, surgeon, Jonathan Cowdery and Nicholas Harwood, mates, as among the officers captured off the coast of Tripoli in the United States frigate *Philadelphia*, November 1st, 1803, and subsequently imprisoned. Dr. Ridgely, upon his release from captivity, resigned and became a practitioner in Annapolis. The other two died in the service as surgeons. Dr. Cowdery was the senior surgeon in the service in 1837 and stationed at Norfolk. Dr. Harwood died in 1812.

The Secretary of the Navy, Robert Smith, in 1807 addressed the Congress with respect to the memorial of surgeons in the navy, stating that "it will be perceived that surgeons and surgeon's mates receive less for their services than the usual profits of private service of physicians on shore."

During the War of 1812, which was fought largely at sea, the previous establishment of completely organized medical schools, and the opportunities thus afforded for medical teaching, had resulted in an education for the naval surgeon surpassing that which had been at his command prior to the Revolutionary period. Intercourse between the mother country and the newly founded republic had placed the surgeons of the latter on a par with those serving in the British Navy. The works of Cheselden, Bell, Monro, and especially of John Hunter, were now within reach of the men who cared for the wounded on the *Essex* and the *Niagara*. It will be remembered that when the *Constitution* had made a floating wreck of the *Guerrière*, Lieutenant Read, who was sent to receive the surrender of Captain Dacres, bore a message from Commodore Hull, who presented his compliments and offered the enemy the services of a surgeon or surgeon's mate. Dacres responded that he supposed the *Constitution* had business enough on board for all her own medical officers. "Oh, no," was the response, "we had only seven wounded and they were dressed half an hour ago!" At that moment the *Guerrière* had between decks fifty-six wounded, one-fourth of her crew.

When Lawrence fell on the deck of the *Chesapeake* and was

carried below, Surgeon Richard C. Edgar and Surgeon's Mate John Dix cared for the fallen hero, who asked Dr. Edgar to go on deck and tell the officer to "fight the ship until she sinks." This incident gave origin to the historical message, "Don't give up the ship."

Three surgeons are mentioned as of Perry's squadron in the battle of Lake Erie. One of these, Dr. Usher Parsons, who remained in the navy until 1823, made an address at the unveiling of the Perry statue at Cleveland, Ohio, September 10th, 1860, in which he described how the wounded were brought below on the *Lawrence* faster than they could be cared for, and of the scene in the surgeon's room, where lay the lifeless bodies of Midshipmen Laub and Pohig, both killed in the cockpit after their wounds had been dressed. "Laub had hardly left my hands, when a cannon ball struck him in the side, dashing him against the wall and cutting his body nearly in twain. . . . Whilst I was

intent upon stopping the flow of blood [of Claxton], news came from deck reporting that the Commodore had gone to the *Niagara* and that our ship was hauling down her colors. . . . In

a few minutes a cry came from the deck, "The ship has struck!" I leaped upon deck, calling out, "What ship has struck?" and saw the *Detroit's* flag and the *Queen Charlotte's* flag coming down. It was enough! . . . I rushed back to the

wounded shouting "Victory! Victory!" On the same occasion, Dr. Nathaniel Eastman, of Seville, Ohio, described his assisting in the care of the wounded taken to the Marine Hospital at Erie directly after the action. This gentleman afterwards received an appointment in the navy as acting surgeon's mate and served on the captured ships *Detroit* and *Queen Charlotte*.

During the memorable cruise of Commodore David Porter on the *Essex* in 1812, the medical officers of the ship were Surgeon Robert Miller and Surgeon's Mates Richard K. Hoffman and Alexander M. Montgomery. The names of both are signed to Porter's Declaration of November 19th, 1813, as the result of which we gained possession of our first islands in the Pacific.

In the list of names especially honored for service in connection with the Navy Medical Corps, including those of Burton,

Ruschenberger, Horner, Wilson, and Gihon, none is perhaps more distinguished than that of Passed Assistant Surgeon Eltsha Kent Kane, the Arctic explorer. It is not generally known, however, that when serving as a medical officer during the Mexican War, he was entrusted by the President of the United States with a special message to General Scott, of the army. In making his way to the Mexican capital, Kane was attacked by the enemy, wounded, and lay ill for many subsequent weeks. On his return to his home, the citizens of Philadelphia presented him with a sword in commemoration of his gallantry and his treatment of the wounded, friend and foe, when himself suffering from personal injury. After his death, the Congress ordered a medal struck in his honor. Surgeon C. D. Maxwell, of the navy, is another member of his corps distinguished for his service to the wounded in the advance with the skirmish line during the Mexican War. DuPont says of him that he was "every inch a surgeon and medical man, but serving in many ways." Admiral Pearson appointed him Acting Consul at Panama, on the death of the United States Consul in that port, a post which he filled as an officer of the navy until duly relieved, with great credit to himself and to the satisfaction of the Government.

The "loblolly-boy" of the old-time navy was a ship-surgeon's assistant, serving as a "bayman" or ship's nurse, though often employed in compounding medicine and doing other tasks under the direction of his chief. The origin of the title, whether from the "spoon-meat" or water-gruel of the ship's ration, or from the loutish or silly persons sometimes so designated, is difficult to determine. The name first appears in some old naval manuscripts relating to the War of 1812, and is recognized in a copy of the "Regulations" published in 1814, the year in which appeared also the first Official Register. The "loblolly-boy" was to serve the surgeon and the surgeon's mate. The name is to be found in the writings of both Boswell and Smollett.

During the Civil War, which was largely fought by the army and on land, the naval surgeon was chiefly occupied with the illness occurring in vessels of the great blockading squadrons, where, with such help as he might be able to derive from the ponderous

tomes of LaRoche and other authors, he struggled with yellow fever, and with the disorders incident to the crowding together in enforced inactivity of large numbers of men. In the naval actions at New Orleans, Mobile, off the coast of France when the *Alabama* was sunk by the *Kearsarge*, in the naval attack on Fort Fisher, and elsewhere, the surgeons of the navy discharged their duties with unexampled bravery and with the skill of their colleagues on shore. Many of them had been pupils of Pancoast, Agnew, Gross, Parker, Bigelow, VanBuren, and Hamilton. They had in their possession the works of the great masters of clinical and military surgery of that day. Carbolic acid, though discovered some twenty-five years before, had only been demonstrated as of practical value at the close of the conflict, about the time when the clinical thermometer was coming into common use. Bromine was successfully employed in cases of hospital gangrene. Labarraque's solution was constantly employed in the dressing of wounds. Scrupulous cleanliness was practiced with respect to all operations and instruments. It is a fact known to every officer and sailor of the navy that since the first of the kind was launched, the American man-of-war has been in all its appointments and crew cleaner and sweeter than any craft afloat. The mortality from wounds and from disease in the navy during the Civil War bears comparison with that of our later fleets. The West Gulf Squadron alone passed through an epidemic of yellow fever, from 1863 to 1864, with a mortality of somewhat less than twelve per cent.

Admiral Dahlgren did full justice, in his report dated November 17th, 1863, to the gallant conduct of the medical officer of the *Lehigh*, Dr. W. Longshaw, in saving one of the vessels of the fleet; but it was Admiral Selfridge who praised the higher heroism of the same officer when he was shot dead, January 1st, 1865, while attending to a wounded marine. In a similar way, Assistant Surgeon J. H. Gottwald was killed, January 1st, 1863, when the Confederate ironclads came out of Charleston harbor to attack the vessels of the United States. Gottwald was killed by a shell entering the port side of the *Keystone State*, while he was ministering to the wounded.

The Spanish-American War, lately concluded, was chiefly naval, though waged for too short a period of time to severely test the surgeons of our fleets. It is interesting, however, to note that in two months of this struggle less than fifty men were killed, and no death occurred from any wound if the damage inflicted was not so grave as to ensure a fatal result in a few hours after its infliction. The war with Spain is illuminated by a brilliant advance in the methods of the care of the wounded in naval actions, designed by Surgeon General Van Reypen and minutely described by Medical Director Marmion. The naval ambulance ship *Solace* was secured for a transport to accompany battleships and cruisers, not as a hospital ship, but, as its name imports, to serve as a transport for the wounded. It was a steam vessel, steel-built, provided with aseptic furniture, sterilizers, hoists for moving cots in which reclined the wounded; beds for one hundred and eighty men; an emergency-ward with one hundred portable cots; a tank holding 137,000 gallons of fresh water, steam laundry, and ice-machine. It was steam-heated, electric-lighted, and capable of a speed of sixteen knots an hour. It is not a matter of surprise that the Japanese have followed this step by fitting up their ambulance ships, the *Hakuai-Maru* and the *Kosai-Maru*, on much the same plan. Hereafter, in naval wars, none can doubt that the ambulance-cruiser and the hospital-ship will be essential parts of a properly organized fleet; and that the transport of the wounded to the old-time "cockpit" will be exchanged for a removal to a vessel flying the Red Cross flag, fitted with every modern appliance for life-saving and the comfort of the stricken.

Medical Director Bradley, in his valuable paper already cited, does full justice to the memory of some of the men of the medical corps of the navy who are on its roll of honor, including the names of Passed Assistant Surgeon Ambler, of the ill-fated *Jeannette*; of Assistant Surgeon John Blair Gibbs, killed in action at Guantanamo, while serving with the Marine Battalion; and Assistant Surgeon Lippitt, who was wounded during the siege of the legations at Peking.

The young man who enters the medical corps of the United

States Navy at the present day enjoys advantages never offered before, and his prospects for a future career were never as promising. The preliminary examination before a board of medical officers of the navy as to his physical, mental, and professional qualifications is both unprejudiced and impartial. Political support and personal influence do not avail in the slightest measure. The successful candidate, after receiving his commission, is ordered to what is officially known in the navy as "shore duty;" and as soon thereafter as the Naval Medical School opens (on the 1st of October of each year) he receives orders to attend the curriculum of this institution for six months. The course is to be extended to seven months in the year 1905. This new procedure, looking to the better fitting of the naval surgeon for his subsequent duty, is of the highest value; and the possibilities of its future usefulness to every branch of the service can scarcely be over-estimated. Through the courtesy of Medical Director Marmion, the writer has recently enjoyed the privilege of inspecting this school in all its departments. The building is well situated at the corner of 23d and E Streets, N. W., in the city of Washington, on high ground, with many acres enclosed, overlooking the Potomac River. The new Naval Hospital is in course of erection in the same area. The building was formerly used as the Naval Museum of Hygiene, a part of the space only being at present devoted to exhibition of apparatus illustrating the original purposes of the Museum. The School is amply provided with lecture-rooms, bacteriological and chemical laboratories, lockers for members of the class, microscopes, and all requisite apparatus.

There are few graduates of our best medical schools who are afforded an opportunity equal to that of the newly commissioned assistant surgeons of the navy for rounding out their education as physicians and surgeons, for assuredly military medical officers must be qualified in all departments of medicine. The schedule of work laid out for the current year is suggestively comprehensive. The morning hours are devoted to physical exercise, hospital corps drill, and studies in signals, tactics, etc. The value of these exercises to the student who has just com-

pleted a work in which for the most part he has been confined in hospitals and lecture-rooms can readily be appreciated. Already the improved physical condition of the young men taking this course has impressed itself upon the officers with whom they have been later associated in service. Other hours of the day are devoted to work in the laboratories and to lectures on the duties of medical officers of the navy, on military diseases and military surgery, on naval law, on ophthalmology, and on diseases of the tropics.

Respecting the subject last named, too much stress can scarcely be laid upon the special need of the naval surgeon to investigate the maladies of hot climates. The contributions to this field made by our colleagues in the military service of Great Britain are sufficient to stimulate the zeal of the American naval surgeon to a keen and honorable rivalry. In view of the number of what might be termed the new Colonial Dependencies of the United States, it need scarcely be added that the responsibility for performing this task is only equalled by its importance. Among the graver diseases more or less prevalent in these lands may be named lepra, yellow fever, acrodynia, mycetoma, and pellagra. Of those with less formidable consequences may be enumerated phagedena tropica, the more recently recognized tropical forms of tinea, including tinea imbricata, and verruga peruviana. The labors of Sir Patrick Manson alone in this fertile field should stimulate the interest and ambition of every American surgeon in charge of the crew of a man-of-war in a tropical station.

On completion of the curriculum of the naval Medical School, the young assistant surgeon receives a diploma and joins the official company of the three hundred and seventy-five men composing the medical staff of the navy, one hundred and fifty-five of whom are on the retired list. His rank, beginning with that of a Lieutenant of the junior grade, may be steadily advanced as he does faithful and efficient service. His rank is real and no longer "relative", and his labors henceforth are in the direction of the care of the thirty-five thousand men constituting the naval force of the United States, whether in one of the

score or more of hospitals and shore stations under the control and management of the Navy Department, or on board of one of its fleet of war-vessels in actual commission. In times of peace, questions relating to hygiene, to the management of epidemics, and to the ill-health of the enlisted men will occupy his attention.

Since the creation of the American Navy, the United States has fought half a dozen important wars, of which three have been preeminently struggles the fate of which was settled at sea. None can doubt that if another war shall ever be fought by the people of this country, it will be essentially a contest in which the navy must play the more important part. The duties of the naval surgeon in times of peace must hereafter greatly differ from those devolving upon him during such intervals as have hitherto elapsed between the battles of this nation, whether by land or sea. The problems presented to him in the care of the wounded in action were never so imperative and grave. They differ widely and wholly from those with which the army surgeon is confronted. The men on a modern man-of-war are no longer in the position of Lord Nelson and his brave men on the *Victory*, who, when they were stricken down, were readily transported to the cockpit. The dictum of that day was: "The surgeon is placed in the hold, where he should be in no danger of shot; for there cannot be a greater disheartening of the company than in his miscarrying, whereby they will be deprived of all help for hurt and wounded men."

The men behind the modern guns are often imprisoned in steel-walled cells, from which transport in action is attended with not only enormous difficulty, but with a high grade of danger to both the wounded and the hospital corps. The rapidity with which modern pieces of ordnance can be discharged, the automatic and machine-like regularity of their volleys, the precision attained in the matter of range and impact of missiles, and, most important of all, the dreadful carnage which the enormous twelve-inch shot and shell are capable of producing—these all present serious problems in connection with the number of men who may be wounded by a single projectile. No one can read the tale of the mangling of human bodies produced on a ship of the

Chinese Navy by a single shell of the enemy during its recent war with Japan, and not recognize within him an intense longing to save American sailors from any such wholesale destruction. It is generally believed in naval circles that a single projectile from an American war-vessel killed more than one hundred Spanish sailors on the *Colon* when that vessel was fleeing from Santiago Harbor. How to precipitate these calamities is the work of the marine architect and the officer of ordnance; how to preserve life after the overwhelming devastation which one of these missiles is capable of producing, is the part of the naval surgeon.

The Honorable Henry Cabot Lodge, of Massachusetts, in a recent debate in the United States Senate, closed his fine address by reminding his colleagues that the navy stood for peace. As the great battleships of the Republic, in a day when the gates of the temple of Janus are closed, are forged (who shall say at what mighty cost and with what incomparable toil and splendid skill!) that they may be in readiness if the doors of that temple shall ever swing open, so the naval surgeon, in the hour when there is no hurtling of shells in the air, must make ready for the worst that can be inflicted in time of war upon the brave men whom the Government confides to his professional charge.

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TRANSPORT OF DISABLED RUSSIANS IN MANCHURIA

THE Manchurian facilities for transporting the wounded, says Hohlbeck, are exceedingly deficient, although the vehicles supplied by the Red Cross Society are excellent on the unfortunately very rare occasions when they can be obtained. They consist of carts such as are used in Finland and a large number have been applied for, which it is hoped will abate the suffering due to the present shortage in transportation. The native carts are so clumsy that, in connection with their being so short as to forbid carriage of a recumbent patient, they are a source of discomfort rather than of assistance to the disabled.

TREATMENT OF UPWARD DISLOCATION OF THE
ACROMIAL END OF THE CLAVICLE IN
THE TROPICS.

By MAJOR P. R. EGAN,
MEDICAL DEPARTMENT, U.S. ARMY.

I WAS called April 3d last to see a patient, reported to have dislocated his right shoulder. He had been returning from a neighboring camp, some three miles away, in a native 'fleche,' a small light cart for the little ponies of the Philippines.



"Fleche."

These are made without seats or back-rest of any kind, and with only a small railing round the edge.

Passengers usually sit Turkish fashion in the center of the body of the cart and hold on by the railing, or, close to the edges and let the legs hang over the sides. The patient was riding in this latter position, when the pony shied and he lost his balance; grasping to save himself, he missed the edge and caught the wheel. He was thus thrown forward on his right shoulder, while the wheel of the fleche passed over his thighs which, however, remained uninjured.

I found the acromial end of the clavicle sticking up very prominently over the shoulder joint, but had no difficulty in discovering that the head of the humerus and the spine of the scapula were in their proper place. The acromial end of the clavicle had been dislocated upward. Neither myself nor my assistant had ever seen such an accident. The Public Health and Marine Hospital Surgeon on duty at this point, had seen one in the clinic of Prof. Wyeth of New York; while the president of the Provincial Board of Health is reported to have seen two.

Mr. Makins, in the International Text Book, gives a list of eight hundred and twelve dislocations treated at St. Thomas' Hospital. Thirty-four of these, 4.19 per cent., were of the clavicle—twenty-one, or 2.58 per cent., at the sternal end, and thirteen, or 1.6 per cent., at the acromial end. These latter he classifies as scapular dislocations. He also states that in four hundred dislocations cited by Krönlein, six, or 1.5 per cent., were at the sternal end, and eleven, or 2.7 per cent., at the acromial end; and the German surgeon adds that many writers consider dislocations of the acromial end twice as frequent as those at the sternal end. My personal experience, as far as it goes, rather coincides with the St. Thomas' statistics, as many years ago, in my early professional experiences, I met with two cases of dislocation at the sternal extremity.

The prognosis and treatment of this condition I found to be as dubious as the statistics. Mr. Makins stated that "entire removal of the deformity is rarely attained. * * * *

But, even if the deformity cannot be permanently reduced, the restoration of function is almost complete, free abduction being the only movement endangered. He recommends the application of a plaster of Paris case to support the arm and keep the scapula

at rest. Or a pad or molded plate of gutta-percha, over the injury, fixed by stout strapping over it and round the forearm just beyond the olecranon, the elbow being brought well forward."

Dr. Mudd, in *Park's Surgery by American Authors*, says, "The bone should be frequently inspected, for the inclination of the articular surfaces favors redisplacement, and treatment must be continued for several weeks. The arm should be used with caution for two months." He recommends Stimson's plan of treatment, or Moore's dressing for fractured clavicle.

The *American Text Book of Surgery* says; "Retention of the bone in place after reduction has presented so many difficulties



Belt Retentive Apparatus for Fractured Clavicle.

that some have taught that it is not worth while to attempt it, especially since persistence of the dislocation ordinarily causes no loss of function; but the method recommended by Stimson is so simple and efficient that it should always be tried. A long strip of adhesive plaster, three inches wide, is placed with its center under the point of the flexed elbow and its ends carried up in front and behind the arm, crossed over the end of the clavicle and secured to the front and back of the chest respectively, while the bone is held in place by pressure on the clavicle and elbow. Recurrence can be easily detected through the plaster, by the fingers, or the eye. For additional security, the forearm should be supported in a sling and the arm bound to the chest."

After consulting these authors, I concluded, if possible, to use the Stimson dressing, with which I considered the stout strapping of Mr. Makins as synonymous. But I had had repeated failures with mustard-, fly-, and all kinds of plasters in the tropics, and I feared that adhesive plaster would, as usual, fail to adhere. My suspicions I found only too true. The best rubber plaster at my disposal would not adhere sufficiently to hold the clavicle in place by means of a pad. While casting about for

something to take its place. I noticed the patient's belt which, it seemed to me would be just the thing. That of the patient however, was unsuited, but the belt of one of the members of the Hospital Corps fitted exactly. Applied over a bandage holding a pad in the axilla, the arm bound to the side and the forearm in flexed position, I found that any amount of pressure could be made on the dislocated end of the clavicle by a suitable pad on which the buckle of the strap rested.

My assistant, Contract Surgeon C. A. Warwick, U.S.A., carried out the treatment, and to his untiring care and patience, with one of those cases so aptly described by the old lady as suffering from "nervus agilitas," is principally due the excellent result obtained. He further broadened the part of the strap that passed round the elbow so that it could be padded, as the patient complained that the strap protected by a bandage was crucifying him. I am also indebted to his kindness for a photograph of the modified belt, and another showing it in use. This dressing is very simple. The belt can, if necessary, be made enlarged for padding, by any saddler, or what I would prefer, but was unable to obtain out here, would be a three inch belt of stout webbing. A pad formed by a rolled gauze bandage is placed over the dislocated bone and this retained in position by the belt passing over it and under the elbow. A bandage secures the arm to the side, either with or without a pad in the axilla, depending on the difficulty of holding the bone in place, and finally the forearm is placed in a sling.



Belt Retentive Apparatus for
Fractured Clavicle in
Operation.

The results obtained after six weeks' application of the dressing and two months' light use of the arm were such that no difference could be discovered between the shoulders, either by the naked eye or the x-ray and that the patient now indulges in baseball.

THE DANGERS OF UNRESTRICTED TRAVELLING OF CONSUMPTIVES.

By JOHN WILLIAM TRASK, M. D.

ASSISTANT SURGEON IN THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

AS Sanitarians, our greatest and first duty to society is the prevention of disease. Our best energies are called upon first to keep from our shores diseases which we do not already possess, and secondly to extinguish and cause to cease to exist as many as possible of those by which we are now afflicted. The former we are doing. Our National Quarantine has been very successful in the past and is constantly becoming more efficient as its scope increases. To combat disease within our borders is not so simple. Each separate state has charge of its own disease, thus producing great variation in the Health Laws throughout the country, in spite of the fact that the nation suffers because of disease in any of its states by reason of the intimate and almost unrestricted intercourse between its various parts.

As practitioners of preventive medicine our greatest problem to-day is tuberculosis. The profession the world over has been working to find a cure. We believe we understand the etiology and pathology of this widespread and devastating disease which robs us of as many of our young men and women as would a continuous war. The masses are being educated regarding it. The newspapers and magazines are doing their share by publishing many popular articles on the subject. The time will soon be here, if it is not already, for by delay thousands of lives are being sacrificed, when the disease can be grappled with, and so very greatly diminished that, instead of being one of the most common, it will become one of the rarest of diseases.

If we believe as we do that the Tubercle Bacillus is the necessary factor and cause of the disease, then our course is

clear, our path is straight and narrow. To prevent the spread of the malady and the infection of new cases, we must prevent the spread and dissemination of the bacilli which are the cause. Only in this way can the disease be attacked effectually. We have been doing this in a more or less halfhearted manner, perhaps as well as we could considering the status of public opinion, and the opposition that health boards have met in various states in their attempt to even secure notification of cases. Were it a disease running a short course and rapidly fatal, we could secure more readily the co-operation of the people at large. But, because of the long duration and lingering nature of the disease which makes each case a source of danger and distributor of the *causa morbi* over so much longer a period, we need this co-operation so much the more. The disease must be combatted with the same energy, zeal and thoroughness employed against the acute contagious diseases, although of course the *modus operandi* will be somewhat different.

We know that the Tubercle Bacillus is the cause of Tuberculosis; and that it is present in large numbers in the sputum of the vast majority of those suffering from the pulmonary type; we also know that by far the greater number of consumptives expectorate broadcast,—some because of ignorance, some because of indifference. We know that Tubercle Bacilli are very resistant and withstand the effects of heat, cold and dryness to a marked degree. Then it is time the profession showed its sincere belief in these platitudes by concerted and vigorous action.

Whenever you have occasion to ship a body of one dead of Tuberculosis or some of the other infectious diseases from one place to another, you will find, if you are not already informed of the fact, that health boards require about as follows: which is prescribed by the Illinois Board of Health,—“that the bodies be prepared for shipment by arterial and cavity injection with an approved disinfecting fluid, washing the exterior of the body with the same and enveloping the entire body with a layer of cotton not less than one inch thick and all wrapped in a sheet securely fastened, and incased in an air tight metallic coffin or casket, or air tight metal lined box provided that this shall apply

only to bodies which can reach their destination within thirty hours from the time of death. In all other cases such bodies shall be prepared by a licensed embalmer in which case the air tight sealing and bandaging with cotton may be dispensed with."

All this is certainly correct, proper, and as it should be. But we are bound to pause and wonder on the inconsistency of many things mundane when we appreciate that this same body when living,—referring especially to Tuberculous patients,—undoubtedly traversed the same route, perhaps in the same train, as it is now taking on its return, but with this difference, that when the afflicted one came, he was expectorating freely, and in many cases broadcast, expectorating large masses of bacilli laden sputum into the car cuspidors and out of the windows and smaller ones perhaps on the floor, and spraying everything before him. He returns in a baggage car, but he came in a Pullman. He used the dining car and perhaps the same knives, forks, spoons, cups, and glasses that you or some one else used at the next meal. They were washed between times of course, but then there are many degrees of thoroughness even in the washing of dishes. He also used the drinking glass or cup at the water tank which many others, unaware of the risks they were running, used after him.

There are not as many consumptives travelling about in the East as there are in the Western states and territories. If there were, proper legislation would have been demanded and enacted before this. It can be stated that every train running through the southwest carries one consumptive and most of them several. A Pullman car in the southwest without a consumptive aboard is the exception. The writer has in mind one which travelled for over 1000 miles with seven passengers, four of whom were consumptives in advanced stages of the disease. A few of them have been taught the dangers to others from their sputum and take care of it properly, that is, carry a cup, properly destroy the sputum when the cup is filled and do their best to prevent spraying, but by far the majority have not been taught these precautions and many of those that have are unwilling to go to the

small amount of pains and trouble necessary to protect their fellow travellers.

Carrying this number of unrestricted tubercle bacilli distributors, the trains are bound to become badly infected, smoking cars, chair cars, dining cars and Pullmans. The sleeping cars and smokers are perhaps the worst, if there is any difference in the degree of contamination. In the sleepers the patient coughs, expectorates and sprays within the narrow limits of his berth. True, the bed linen is changed daily, but not so the woolen blankets. In the smoking cars infection is apt to be great for the simple reason that those travelling in it are always more careless in regard to expectoration there than they are elsewhere. But all the cars are bad due to the very nature of their make-up. What could be worse than the plush upholstery and the immovable low seats. Plush will catch and retain flying particles of sputum until they dry better than almost anything else. All that is needed then to make bad matters worse is the periodical stirring up of the dust with the feather duster by the porter under the impression that he is removing it. Then, too, the low seats screwed to the floor render it well nigh impossible to properly cleanse beneath them when the car is cleaned between trips. Also the low cuspidors of small capacity placed between the seats on the floor where none but the user can see the result induces many men to spit at rather than into them.

It is impossible under present conditions to know just how many consumptives there are in a given community or population. This is all the more true because by far the majority of cases are not diagnosed until they have reached a comparatively advanced stage. But oftentimes the early cases are just as dangerous to the community, as their sputa frequently contain large numbers of bacilli. We do know that there is at the very least one consumptive to every five hundred of population. This would give a city of 500,000, one thousand consumptives. But a very small percentage of these have any means of caring for their sputum. Many street car lines have signs placed prominently, cautioning passengers not to expectorate in the cars. Some cities make it a criminal offence to expectorate upon the sidewalks, but it is not

in these places where there is free access of fresh air and where the organisms which are found to be in the dust are comparatively few and well diluted that the chief danger lies. It is in the house, the store, the shop, the factory, the office, the steamer stateroom and railroad coach that new cases develop.

In houses which are owned by the occupants the danger is mainly to the one family. All men in private practice know how utterly careless many consumptives, especially among the more ignorant classes, are at home. You have seen them load pocket handkerchiefs with bacilli laden sputum, and expectorate small particles on carpets and rugs; you have seen them sneeze and cough, spraying everything before them; you have seen them all drink out of a common drinking glass. Or perhaps you personally have not seen these things and do not appreciate that they exist, or perhaps you say that these things occur only among the ignorant. But these things do exist and are found in all classes of society. The writer has seen consumptive mothers and fathers too, take a spoon which they had been using, a spoon which had been in their own mouths and feed their child from it. The use of a single drinking glass by the entire family is a common occurrence.

Illustrating the dangers to one's immediate family, and you all undoubtedly know of similar cases, I have in mind one of six members, the father, mother, three sons and a daughter. All were in apparently good health, when one son contracted pulmonary tuberculosis. Inside of five years every member of the family except the father had died of the disease. This is the danger to the immediate family. But when it occurs among people who live in rented houses the danger is increased manifold. The diseased family infects one house, apartment or flat and moves to another to infect it in turn. Other families move into those the former occupants have infected and left. Thus the infection of houses and apartments goes on and the exposure of successive families increases.

In stores you will very often find a consumptive clerk, stenographer, or bookkeeper who expectorates everything but the larger masses of sputum on the floor. One clerk will in this way

infect a large area of floor space. The sputum when dried and swept in the usual way will scatter in dust the dried particles over a considerable area.

In shops and factories matters are much worse, for here expectorating on the floor is more common and the buildings are usually kept much less clean and in many a thorough cleaning is unknown. In many offices, too, the danger is great; especially is this true of some newspaper offices where many of the staff often work in a limited space, and thorough cleansings are sometimes rare.

In travelling by water, a careless consumptive in two or three days occupation of a stateroom can and oftentimes does so infect everything around him, especially the carpets and rugs, by voluntarily expectorating upon the floor, that it is a constant menace to future occupants. Much the same conditions exist in steamer cabins as in railroad coaches and the same remarks apply to both.

To and from the West and Southwest consumptives are constantly travelling. The railroad coaches as previously stated are bound to be badly infected. The majority of those going West have but moderate means and by them the dining and waiting rooms in depots are made the receptacles of sputa. Especially is this so of the dirty waiting rooms and, "hurry-up", lunch counters found at small stations.

Throughout New Mexico, Colorado and parts of Texas a very considerable proportion of the population of the towns consists of consumptives. You meet them on the streets, expectorating broadcast. You meet them working in shops and stores, living in boarding houses and hotels. You meet them anywhere and everywhere. That the buildings in these places especially the hotels, boarding houses, shops and stores should have remained uninfected is impossible. That the well portion of the population has not been decimated may be due to the dry climate and abundant sunshine. But be that as it may, new cases have been and are developing in New Mexico, Colorado, and Utah, as has been learned from their health officers in the two states and from personal knowledge in the territory. The people are beginning to find that the presence of careless consumptives in their

midst is a source of personal danger to the community. That the natural conditions alone in this land of sunshine will not prevent the spread of the disease is thoroughly demonstrated on the Indian reservations where 75% of the Indians die of Tuberculosis.

REMEDIES.

The remedy for the existing conditions of unrestricted dissemination of the cause of Tuberculosis lies in the co-operation of the medical profession and the people at large in a campaign of many years duration. Were a foreign enemy to slay as many of our citizens as does this disease, the nation would be up in arms and devote hundreds of millions of dollars, if necessary, to put an end to it. Nevertheless, we have in our midst an enemy more dangerous, and costly to the community than would be an actual war. The disease being widespread and its cause invisible to the eye, we are individually in a measure unable to combat it as we could a visible foe. It attacks those dear to us and our first warning is the finding of the disease already established. The very prevalent idea that only certain predisposed individuals are liable to infection is erroneous. It may be true that some are more easily infected than others. Also that conditions of ill health and lessened resistance due to acute infections, overwork and improper modes of life make one more susceptible to the disease, but it is also apparently true that it is simply a question of dosage and that the most robust will succumb provided a sufficient number of bacilli gain entrance into the body.

Correct diagnosis on the part of the attending physician is the first essential. It must be made early. Most any layman can pick out the disease in its later stages. But if we will give our patient a chance of recovery; if we will protect his family, friends and associates, then we must know what it is we are treating and we must know it before the lesions are so far advanced that the patient has little or no hope of getting well, and those with whom he has come into contact have also developed the disease. Diagnoses are in most cases made late. In spite of the frequency of the disease and the fact that we are continually coming into contact with it, it is perhaps less often diagnosed than any other

common malady. Physicians seem to shun the diagnosis and fail or fear to name it. It is called pleurisy, weak throat, weak lung, most anything but the proper thing. It is astounding the frequency with which we run across a patient who gives a history of cough, expectoration, pleuritic pains and perhaps night sweats or hemoptysis with a loss in body weight extending over a period of months and perhaps years, and who upon examination shows advanced lung lesions, who has been usually under the care of several different physicians in that time, and yet has never been told and does not realize that his ailment is serious. If the disease were rare or the diagnosis difficult, it would be different. Or if the disease were incurable we might pardon this neglect. But when we know that the disease is one of the most common, that its diagnosis is comparatively easy, and that recovery invariably depends upon finding the disease in its earliest stages, and that by so doing and advising proper care and methods of living, we give our patients a good chance of recovery, then there seems to be no excuse. An early diagnosis means a good chance for recovery; a late one means practically none.

There seems to be a sentiment among practitioners which deters them from informing their patient and his family of the nature of the illness. This is surely unwise, unprofessional and absurd. For unless everyone concerned realizes thoroughly the disease, its nature, and its dangers, the physician can neither secure proper care for his patient nor proper protection for others. It would be out of the question to expect a patient to attend carefully to the destruction of all sputum, to refrain from kissing his wife or children, or to live the methodical hygienic outdoor life he should, if he is unaware that he has a disease dangerous to himself and others, or for the family to see to the proper sterilization of all dishes used by the sick one or to assist him in his more or less long and tedious battle for health, if they are not told that their dear one has tuberculosis and instructed as to its nature.

Then, too, there should be notification to the proper officer or board of all cases as is at present the custom in the acute contagious diseases. This is necessary that a community may know

how many consumptives it has in its midst and where they are. This is already being tried in some of the states, but has met with great opposition both on the part of the laity and the profession alike. There seems no good reason why this opposition should exist. It is done in many diseases and no one seems to object. Why not then in Tuberculosis? It would not work hardship on the patient, but even if it did society has a right to demand it for its own protection.

It should be the duty of the health officer in each community to see that each patient and those with whom he lives are thoroughly instructed as to the proper care of sputum, the sterilization of all articles used by the patient in eating, sterilization of soiled handkerchiefs, the dangers from rugs, carpets and plush upholstered furniture in rooms where a consumptive coughs, and that even when cough is slight, certain patients will do a great amount of spraying in the act of talking. It should be seen that each patient has proper receptacles for sputum both in the house and when on the street. Hand cups and pocket cuspidors might with advantage be supplied at public expense and, where need be, collected and sterilized daily.

The same authority should be at the disposal of the people to disinfect the house when desired, and should always do so when the patient has died or the family has moved from the house, flat or apartment. It would also be very desirable that each community have a sanatorium where patients can be taken free of expense at the discretion of the health officer when in his opinion the patient lives among such surroundings that proper precautions cannot be followed out, and the health of others is endangered unnecessarily, such as would often occur in tenements and where people live closely crowded together, or where the relatives are vicious or ignorant to the extent that they would ignore all instructions.

As previously stated when you consider the restrictions imposed and the precautions required in the shipping of a corpse in a baggage car, the way consumptive patients are allowed to travel anywhere, and everywhere, with no restrictions and no precautions is absurd and abominable. Under existing conditions

one runs a chance of becoming infected every time he rides in a railroad coach or takes a stateroom on a steamer. This condition need not exist. It can be remedied and work no hardship to any one. All coaches could be furnished on a plan diametrically opposite to that now followed. Instead of making as many dust collecting and dust holding surfaces as at present, and making cars such that a thorough cleansing is impossible, they should be fitted with smooth surfaces and all interior furnishings so put in that they can be removed after each trip and the car thoroughly cleansed. Plush upholstery should be abolished and replaced by something with a smooth surface and waterproof, such as leather or other prepared fabric, which will not collect dust to any extent and can be wiped or washed perfectly clean with a damp cloth. Carpets need not be used on the floors. Something of course would have to be used in their place to prevent passengers slipping and hurting themselves as would occur on a smooth floor when the car was in motion. For this rubber matting would answer all purposes. It would prevent slipping, and if fastened by patent fasteners could be removed and disinfected at will. It would also prevent the filthily inclined from expectorating on the floor and rubbing it in out of sight with the sole of the shoe as is often seen on carpets. All seats should be removable so that they can be taken out and the floor beneath them thoroughly cleansed. The junction of the floor with the walls should be rounded, the floors should be free from cracks. Cuspidors should be much deeper than those now used and placed out in plain sight to avoid carelessness in use and have a small amount of some germicidal liquid in them. Cars can be so made that they could be easily sealed reasonably tight for facilitating disinfection.

Each car could be disinfected with formaldehyde or sulphur dioxide at the end of each trip or, if the car makes but short runs, two or three times a week. At the end of each trip, all hangings, draperies and floor coverings, such as the rubber matting previously mentioned should be removed and sterilized by steam, the seats should be moved and the car mechanically cleansed. Or the gaseous disinfection could be dispensed with and replaced by mechanical cleansing followed by mopping of

floor and wiping of all furniture and seats with a sufficiently strong bichloride of Mercury solution. Common drinking cups at the water tanks should be abolished. Each traveller could carry his own cup, or else he should be able to buy on each train at a small cost a new cup for his own use which could be thrown away on leaving the car. On dining cars all dishes should be well scalded with boiling water in addition to the mechanical cleansing commonly termed washing. In sleeping cars in addition to the freshly laundered linen, blankets which have been sterilized since last used could be furnished.

All consumptives should be required to use sputum cups while on the train, the cups to be furnished by the trainmen and cleansed and sterilized when full free of charge.

All trains carrying passengers to and from the southwest should be fitted with special compartments in which consumptives who cough and expectorate to any extent can travel by themselves. This would be a great convenience to the patients and a protection to the public. No one expectorating a mucopurulent sputum cares to do so in the presence of others provided it can be avoided. And the special compartment would give consumptives a privacy to be desired by all. Half of a coach could be so fitted up that it would accommodate several passengers. In it, or connected with it could be kept burning a coal fire into which patients could throw their filled sputum cups which of course should be destructible. Their meals could be served in this compartment, thus preventing coughing and spraying in the dining car. In this way the many consumptives travelling to and from the West would be rendered much more comfortable and the travelling public at large would be protected from unnecessary exposure to the disease.

Another great source of possible infection is the hotel. Very few are as careful of their sputum as is desirable for the protection of others, and in private they are less careful than in public. But even with careful destruction of all expectorated sputum, rooms occupied by consumptives will become badly infected by spraying. It follows that practically any and every room occupied by a person with tubercle bacilli in his sputum, must become infected, the extent depending upon the duration

of occupancy. With this in mind, it seems safe to say that in hotels, each room should be disinfected after the guest who has occupied it has left and before being again used. As a matter of business policy and comparatively cheap advertising, the hotel which does this and lets the people at large know of it will certainly reap the harvest of increased patronage.

All hotels, restaurants and other places furnishing meals to the public should be required to sterilize by boiling after use all dishes and eating utensils which are ordinarily put to or inserted into the mouth in the process of eating. The dangers from this source are apparent to all. It is always unpleasant at best to realize that perhaps the spoon you are now using was at the preceding meal used by one expectorating large amounts of mucopurulent sputum laden with tubercle bacilli. This danger is all the greater at cheap restaurants, boarding houses, and lunch counters where less care is taken in the mechanical cleansing of dishes.

If we would make our campaign thorough, all public buildings would be periodically disinfected. We must take it for granted that we have with us on all sides an infectious disease of which the specific cause is being continually scattered abroad wherever people congregate, and that to protect the community periodical disinfection is necessary. The same applies to street cars which as a rule are not even mechanically cleansed as they should be.

CONCLUSION.

Tuberculosis, being produced by a specific organism, its spread can be prevented by the destruction of that organism, and by preventing its spread we have conquered the disease.

In conclusion the writer desires to state that after having lived for two years at a sanatorium having approximately 200 consumptive patients with whom he was continually in intimate contact, that in his opinion there is less danger of infection in a well regulated institution than there is in ordinary city life, and many many times less than in travelling where one is apt to use berths on trains, rooms in hotels and dishes at meals that have been previously used by those suffering from pulmonary tuberculosis.

THE MEDICAL SERVICE OF AN ARMY IN MODERN WAR.*

By MAJOR WALTER D. McCAW,
SURGEON IN THE UNITED STATES ARMY.

IT is very natural for the general public to look upon medical men as a class whose mission is to relieve pain, to heal the sick and wounded, and to save life to those who have been stricken with disease or maimed by accident. The ideas of the average man on the profession probably stop at this point. To him the great man of medicine is he who, like Dr. Loienz, makes the child born a helpless cripple to walk, or he who extracting the opaque lens from the eye makes the blind to see, or who in operating upon the innermost organs of the body now-a-days gives renewed life to patients, who formerly would inevitably have died without the possibility of help.

Undoubtedly, now as always, to heal is the special and most glorious privilege of the physician, and that doctor, be he civilian or military, who does not hold the cry of suffering as a call to arms, is entirely unworthy of his great calling. Nevertheless to limit in our minds the work of the medical profession to relieving pain and restoring lost health, is to take a most one-sided view, and shows utter ignorance of what medicine today is accomplishing and has actually accomplished.

When Jenner, in his country village, gave vaccination to the world, he did more for humanity than thousands of self devoted practitioners could have done in the terrible smallpox epidemics of olden times. When Lister demonstrated aseptic healing of wounds based upon the discoveries of Pasteur, he made possible all the triumphs of modern surgery and prevented more suffering than a thousand surgeons could do in treating the wounded under old conditions. When Walter Reed, Laveran

*A lecture delivered at the War College, Washington, D.C., March 25, 1905..

and Ross showed how yellow fever and malaria are transmitted, they deprived vast regions of the world of half their climatic dangers to life and health.

"Prevention is better than cure," and this proverb, a mere platitude, as it is, indicates to my mind the very first duty of the military medical officer, and by far his most important function.

In military life, especially in war, the utilitarian view must take precedence of the sentimental. As the object sought is the destruction of the enemy, the health and lives of the country's best young citizens are at times necessarily secondary to the attainment of success in battle. But that the medical department of an army has a direct part in the winning of battles largely outside of the healing art is, I believe, easily demonstrated.

In fact the treatment alone of seriously sick and wounded has actually very little to do with the success or failure of a military enterprise. Here and there we read in history of the loss of a great commander leading to national disaster, and we may easily see that in such a case successful medical treatment would have had an enormous influence upon the outcome of the war. Such instances are however rare. Also the treatment in the regiment and in the battalion of the thousand and one *minor* ailments that soldiers are subject to, is a matter of the utmost importance in preventing loss of strength to the fighting force, but the brilliant operation which saves life leaving more or less disability, the successful treatment of a deadly continued fever with long convalescence, in fact all the beautiful humane work of a modern hospital equipped with every appliance for the treatment of disease, has scarcely any bearing on the successful issue of a campaign. The patients are lost to the fighting force, and their ultimate death or recovery has no perceptible effect on the war's outcome.

That the Government, through the medical department, must provide for the seriously sick and wounded of the army the comforts and even luxuries of civil hospitals of the first order, is demanded by the people, and richly deserved by those who are injured in their country's cause. The general commanding in the

field will concede this fully, but his paramount duty being to fight the enemy, for this purpose, he is primarily interested in keeping his ranks full of well men, and he wants his army unencumbered with disabled men. Let us see now how far, and in what way he can count upon his medical department to help him to his final success in modern war, along these lines and under the system of field medical service proposed for our army, which does not differ in principle from that of most of the foreign nations.

Beginning with the regiment of infantry or cavalry as a unit, and with the light battery as the artillery unit, we find that the regiment is allowed three medical officers, a surgeon and two assistants, and twelve enlisted men, three of whom are non-commissioned officers. The duties of this little force are quite strictly limited in certain directions, but are nevertheless of supreme importance. Once or twice a day every man of the regiment must be given an opportunity to consult a medical officer for any little ailment he may have, and receive treatment. We must remember that the checking of a slight diarrhœa, the dressing of a cut thumb, or the proper treatment of a blistered foot often means a man to fight instead of a man lost. Beyond this endless attention to trifling ills and an occasional surgical operation in an emergency, and that only when it cannot be avoided, the routine duties of the regimental surgeons as medical practitioners do not go. The badly disabled man must go somewhere else; the regiment in the field is no place for him.

As sanitarians it is necessary for the medical officers of the regiment to know the men individually, to keep constantly before themselves every circumstance of the daily life of the organization, which may affect the health of the soldiers. They should know what the men are eating, what water they are drinking, how clean their persons are, what diseases are prevalent in the country and among neighboring troops, the condition of every company kitchen and sink. They need not be great scientists or great physicians, but they must be faithful, giving unremitting attention to small things, firm, tactful and unobtrusive. They need offend no one by needless officiousness, yet they must keep the colonel constantly advised of the health of his regiment. To

my mind it is worse than foolish to keep the men stirred up by constantly lecturing them on every possible danger to their health, but opportunities occur daily by which sanitary advice may be effectually given here and there to those who can compel the observance of the rules of hygiene, the officers and non-commissioned officers. It is hard to exaggerate the good that ideal regimental medical officers may do, but it must not be forgotten that they are powerless if they have not the full sympathy and support of the colonel and the subordinate commanders. To keep the ranks full of well men, by treatment and prevention, is the regimental surgeon's function. The seriously sick encumber the fighting force, and are to be removed as quickly as possible.

To treat his patients the regimental surgeon has, when the regiment is brigaded, an extremely slender equipment. It is undoubtedly right that the fighting units should be kept free from all impedimenta, not absolutely necessary, and so, according to our new field regulations, a single wagon must suffice for the medical department of the regiment, including the material of the infirmary, which weighs about 1600 pounds. Two hospital tents medicines, dressings, a little emergency food supplies, and a few miscellaneous articles make up the entire infirmary. Under ordinary circumstances enough for three months is on hand.

Emergency cases can be treated over night and the minor ailments of the soldiers attended to after sick call.

In action the regimental medical personnel must never lose touch with the command. The wounded are dressed with the first aid packet, of which each soldier in the regiment carries one, and receive the immediate treatment necessary. This work is done by and under the superintendence of the medical officers and the enlisted men of the hospital corps. The wounded are removed to whatever shelter is immediately available, and further than this the regimental medical force is not responsible. If the regiment move forward, the wounded must be left, those able to walk, of course, making their way to the rear as best they can.

Transportation of wounded to the rear is no part of the regiment's business, for in battle the regimental surgeon has not a single ambulance under his control. In camp and on the march

each regiment is furnished with one vehicle from the ambulance company, but these must all be reported to the company before battle. As the foundation of the whole system of medical service in the field, it is imperative that the regimental medical force must be of the best quality. Knowledge of military life, good judgment, and personal bravery are as necessary to them as to company officers. Men picked up from civil life can hardly be expected at first to fill such positions satisfactorily, no matter what their professional skill may be.

In the field artillery arm of the service, the medical force consists of one officer and two enlisted men of the hospital corps to a battery; the same for a signal corps company; while for a battalion of engineers, two officers and eight enlisted men are allowed. All these allowances for the immediate medical care of the fighting troops certainly do not exceed the actual necessities of active service. Every officer and every enlisted man has amply enough work to occupy his full time even in camp and on the march, while in battle their duties may be temporarily overwhelming.

The organizations which immediately believe the fighting line of its sick and wounded, now come into use, namely:

The ambulance company and the field hospital, of each of which there are in our service four to a division. During an engagement the ambulances (ten or preferably twelve to a company) are brought as near to the front as circumstances will allow, without exposure to the enemy's fire, and at the first possible moment. The personnel of the ambulance companies establish dressing stations and ambulance stations under the direction of the brigade surgeons, and then as quickly as possible transport the wounded to the field hospital. To collect the wounded, redress such as require it, and carry them to the hospital, the company has litters, travois, and a few pack mules, besides its ambulances. In camp and on the march, the companies furnish each regiment with an ambulance for daily use. The rest of the ambulances pick up on the march such sick and wounded as are left by the wayside with a proper pass from a medical officer of the regiments, and they also carry forward the patients of the field

hospitals when the latter cannot be evacuated, or in case the prospect of recovery in a reasonable time makes it advisable not to send certain patients to the base. The personnel of the ambulance company consists of three officers and sixty-nine enlisted men, about fifteen of whom should be drivers.

In the field hospitals the sick and wounded are cared for until they can be sent to the base, or stationary hospitals, or, in a small percentage of cases, returned to duty. These hospitals are to be always ready to move, and when the army is on the march, only as much of the material is to be unpacked as is necessary for the day's needs.

Each organization can care for 108 patients comfortably, and in emergency, such as after a big battle, the patients may be increased to 162 by extending the tent flies as part of the shelter.

Eight wagons are required to transport it. Its personnel consists of four officers and forty-nine enlisted men. The present allowance of eight four-horse teams is not enough for both field hospital and ambulance company, as the weight of the field hospital alone is 18,000 pounds excluding tentage for the enlisted personnel. A point of some importance is the combination of the ambulance company with the field hospital under one management. In favor of this proposition, which is the one adopted in our new Field Service Regulations, it may be said that it gives the officer commanding the field hospital opportunity to use the large force of enlisted men of the ambulance company in caring for his sick, at times when their services are not demanded in battle, or for transporting the wounded. Against it is the argument that the company will very often in its work be necessarily separated from the hospital, and should, therefore, be independent in its interior economy. It is not likely that the question will be settled to the satisfaction of all concerned, until the actual test of campaign work on a large scale is applied.

To complete the medical service of the front, only one more movable organization is required [not yet authorized], an advanced supply depot, from which the field hospitals, the ambulance companies, and the regimental medical force recruit their supplies of dressings, stores, and medicines. There need be only

one to a division, and its personnel should be one officer and eleven enlisted men. The depot may be transported in six wagons, as no large articles are carried.

We have now briefly run over the working units of the medical department of the front, of which the different organizations have each its special part to play in the daily routine of camp life, on the march, and in the emergency of battle. To direct and co-ordinate the action of the whole, a chief surgeon of the division, and chief surgeons of brigades are called for.

The brigade surgeon is the medical adviser of the brigade commander. He must collect the daily reports of sick and wounded for higher authority, forward papers, promulgate the orders of the brigade commander, and those coming from the higher authority. A special duty is assigned to him in action, the supervision of the dressing stations, including the collection and removal of the wounded from the battlefield to the ambulances. The brigade surgeons of a division are very available as members of boards for passing on discharges for disability, examining sick officers for leave of absence, etc.

The chief surgeon of a division, in addition to his supervisory work of the medical force, is especially charged with the location of the field hospitals prior to engagement, and the assignment to special duty of his officers. That this, requires him to know as much as possible of the army's movements in advance, is self-evident.

If one comes to criticize the scheme of medical service of the front in war, the subject must be approached from many sides, and the first question is this: Is the force allowed by the Field Service Regulations sufficient in personnel, material and transportation? Out of a division of 19,432 officers and men, 75 are medical officers, and 636 are hospital corps men. For every 300 men there is a medical officer; for every 30 men there is an enlisted man of the hospital corps (including, however, all drivers, cooks, orderlies and clerks). Now I believe the strength to be *fairly sufficient* and no more, certainly it will not stand much depletion during active service.

Should the entire division go into camp for several months, the medical force of the front would undoubtedly be ample.

Should a series of great battles and rapid movements take place, it would be soon strained to the breaking point, and probably be inadequate to the demands upon its services.

In material it has enough for emergency work, and the necessary conduct of the field hospitals, but any failure to promptly evacuate the sick and wounded from the front to their final place at the base or at home; any congestion along the line not properly relieved, will exhaust certain articles very quickly.

The transportation is too closely calculated and leaves no margin of safety in case of the almost inevitable loss of animals or vehicles; the number of wagons and ambulances allowed by the Field Service Regulations is too small.

When McClellan's army after Antietam crossed the Potomac in 1862, for 110,000 men there were 907 ambulances; when the army of the Potomac crossed the Rapidan, for 125,000 men there were 835 ambulances.

In Sherman's army the 14th corps, 15,880 strong, had 112 ambulances and the 15th corps had 150 ambulances. Our proposed division is larger than either of these corps, yet only forty ambulances are allowed.

Now comes the question: Is this service at the front too complex? At first sight it would seem that a wounded man is subjected to a vast deal of moving. Take, for example, a soldier seriously but not fatally wounded, but who is at once rendered helpless, say by a gunshot fracture of the leg below the knee. If in a post, a large camp, or the streets of a city, a like accident occurred, the patient would be picked up, moved at once by vehicle or litter to a hospital, his treatment completed in a few hours' time he would be put to bed, there to stay until well. In battle, his wound is dressed effectually if not very elegantly where he falls. He is moved to the nearest convenient place of shelter immediately available, and left. His regiment may move forward, retreat, or take stand in the near vicinity. Later he is moved to a dressing station and his bandages inspected or re-adjusted, then to the ambulances, then to the field hospitals. Here he is comfortable, and finds a bed, proper food, and nurses, but his peregrinations are by no means over.

The field hospitals are movable organizations; it is imperative to keep them free for new cases. Back the patient goes to the base, with stops proportionate, of course, to the length of the lines of communication and the available means of transportation, later perhaps, home to a convalescent, or a general hospital. Circumstances may shorten all this moving, but all nations have fairly well settled that in active movements of troops all these stopping places must be provided, for the disabled.

The field hospital can sometimes be brought to the wounded instead of carrying the wounded to it, but the rearward movement of the sick and wounded is necessary just the same.

Not a single organization of the medical force of the front should ever be immobilized unless a proportionate number of the fighting force are also made stationary. In the case where from circumstances of location it is desirable to continue the use of the field hospital site for more permanent treatment of the sick, a stationary hospital must be there established, for which the material and personnel must be brought from the base, releasing the field hospital force and equipment for future use with the moving army. The whole scheme of medical service at the front will fall through, if the organizations are depended upon to do more than fulfill the special functions for which they are adapted. The rules of different nations vary considerably in the length of time that the wounded are permitted to stay in the field hospitals. In Germany they are supposed to be evacuated in about six or seven hours, and the German equipment is not quite as elaborate as ours. With us patients might have to stay in the field hospitals and receive all necessary treatment for a day or two. Here, of course, there is an immense difference in terrain from continental Europe. In a war between Germany and one of her neighbors, the armies would manœuvre over a country with excellent roads, thickly dotted with villages and towns. The seizure of suitable buildings for the comfortable treatment of the sick and wounded would nearly always be practicable. Tentage is therefore reduced to a minimum, so the German movable hospitals need less material than ours; and can be kept free of crowding, retaining their wounded for a few hours only. In a war be-

tween Mexico and the United States, or between Canada and the United States, the material for movable hospitals would of necessity be much more bulky, principally on account of tentage; and the wounded would often have to be treated a day or so in the field hospitals, before evacuation could be accomplished.

It seems to me that this recognition of the absolute helplessness of the medical service of the front to give any sort of permanent aid to the sick and wounded cannot be too much insisted upon. The work of the regimental medical organizations, the ambulances and the field hospitals, is of immense importance and directly concerns the efficiency of the fighting force, having thus a positive effect upon the result of the campaign, but anything beyond temporary relief to the suffering is not to be expected. The sanitary work of the medical officers with fighting organizations, supervised by the brigade and division chief surgeons, should prevent loss from disease, and *will* do so exactly in proportion to the extent to which it is seconded by the efforts of officers and non-commissioned officers in enforcing the obedience of the soldier to the simple rules of healthy living; rules neither complex nor difficult of comprehension. The ambulance company and field hospital relieve the fighting army of its encumbering sick and wounded as quickly as may be, but must always be themselves clear of encumbrance before another battle or forward movement. All of these movable organizations are considered "ambulances" under the terms of the Geneva Convention, and are exempt from capture.

It would be a mistake to use the field hospitals for permanent treatment, even in times of relative inactivity. The proportion of 432 beds, for nearly 20,000 men is so entirely inadequate, for anything except emergency, that the slight gain of hospital room would not begin to balance the disadvantages of being unprepared to move at short notice. Much better to keep the field hospitals packed than to begin to rely upon them as permanent places for treatment of patients. The service of the front which I have sketched is, in modern armies, confined to the army medical organizations. Seldom, and then only in great emergency, will it be advisable to use at the front the personnel of

voluntary aid societies, always so generously offered by a patriotic people to their soldiers. If used at all, such voluntary aid should at the front, be confined to the early aid and transportation rearward of the wounded.

The hospitals of the Red Cross Societies find their proper sphere of usefulness on the lines of communication, at the base, and especially at home, as supplementary to the regular military organizations.

As the officers and enlisted men of the medical department must be soldierly disciplined and familiar with military life, there can, it seems to me, be no question but that in peace times, the full quota of field strength for regular forces should be maintained in readiness.

While we are able to approach the problem of the medical service of the front with some kind of exactness, and thus make suitable provision for its general solution, it is of course entirely otherwise with the service of the rear. Here each campaign presents its own problem, much of which cannot be foreseen. Climate, distance, presence or absence of free unobstructed communication by rail or water, and many other conditions, may make the treatment of the army's sick and wounded a simple or a very complex proposition. Briefly, it may be said that now the professional side of the medical department finds its full sphere of activity, whether at the base or in the home country, it may be thousands of miles away. No necessary appliance or improvement known to surgery or medicine need be omitted. No comfort available to city residents need be wanting. This is the part of the medical service in war in which the people take the greatest interest, and of which they become the severest critics. The citizen friends and relatives of the soldiers in the field will stand for losses in battle, or unavoidable hardship at the front, but their patience does not extend to putting up with any lack of nursing, comfort, or even luxury for those who come away from the battle field alive. I may also say that this is the part of the medical service that costs the most money, in buildings, furniture, hospital ships, hospital cars, ice machines, steam laundries, X-ray outfits, operating rooms, etc. It is clearly im-

possible without an unwarrantable expenditure of public funds to provide in time of peace for the adequate medical service of armies not in existence, but even for the final treatment of sick and wounded in war much preparation may be and should be made. The standing army of any country needs, in addition to the field medical force of the front, enough medical officers and men of the hospital corps to treat at the rear and at home all the sick and wounded that can be ordinarily expected from the standing army at full strength. As volunteers, etc., are added, proportionate medical force is, of course, also demanded, but the regular army should be able to provide at least a nucleus of trained medical officers of the higher grades to superintend the work of the newly enrolled surgeons, to be the chief surgeons of divisions or of corps, to administer the supply of the entire medical department, to scrutinize and keep correct the records of the sick and wounded, and so protect the interests of the individual and the public treasury when the inevitable pension claims begin to pour in.

Indispensable for proper conduct of all the complicated medical affairs of a war, are trained medical inspectors. No provision is made for these in peace times, but no class of men in the medical department performs more necessary work in war.

The new manual for the medical department of the army, now in preparation, has provided for the medical service of the base and lines of communication as follows: For each division of 19,432 men, one base hospital of 500 beds is allowed; also two stationary hospitals of 324 beds each, a total of 1,148 beds, or accomodation for just a little under 6 per cent of the whole force.

The base hospital is fixed, established generally in buildings, furnished with all necessary field furniture to be replaced with regular hospital furniture when permanently established. The stationary hospitals are partly movable, but not freely so. They should also be established in buildings of more or less permanent character when possible. Both are, however, provided with full tentage. One or both of the stationary hospitals can be moved toward the front whenever considered advisable, especially when the lines of communication are lengthened; they are then estab-

lished, and serve either as the final place of treatment for sick and wounded of moderate severity, or as resting places for those who are manifestly destined to be sent further back. The stationary and base hospitals are not to be provided with wheel transportation, excepting the three or four ambulances and wagons necessary to their interior economy. Both the base and stationary hospitals are really field organizations and will often have to be established under canvas with field equipment. It is, however, impossible to keep a tent hospital in one spot, even when floored and framed, in a condition of cleanliness, and it is very expensive to maintain on account of breakage of the light furniture and rotting of canvas. So whenever the base of operations is foreseen to be of long duration, with well established lines of communication, it will nearly always be necessary to construct pavilions and use therein the same furniture that is issued for the post and general hospitals of the army. There will always be plenty of demand for the tentage and field equipment from the field and more advanced stationary hospitals.

Often it will be possible and desirable to build large general hospitals at the base. Sometimes there may be, when the base is a large city, regular hospitals already existing, or buildings suitable for such, but as I said, it is impossible to foresee generally what the best method of handling an army's disabled at the base and at home will be. It is obviously necessary, however, to provide in advance material for at least as much hospital room at the base as is proposed by our new medical manual,—1,148 beds to a division of 19,432 men.

From first to last we have now, including field hospitals, provided for bed room for about eight and one-half per cent. of the army, and it would have to be a very innocuous war or a very healthy environment, when much more than this would not be required. The sick report of the army in the Philippine Islands during the first three years was about seven to eight per cent. on the spot, not including those sent home. In the present war, in Manchuria, a single great battle has thrown many times as large a percentage of wounded alone upon the surgeons' hands. In 1864, nine per cent. of the federal army's strength was in the

general hospitals alone, with six or seven per cent. at the front additional. But as provision for treatment of invalided soldiers at home or at the base in general hospitals could no doubt best be made after the special conditions of the war were more clearly seen, perhaps this allowance of eight and one-half per cent. for the army in the field is enough to have in readiness. It is the desire of the medical department of the United States Army to keep on hand the furniture and material for regimental, field, stationary and base hospitals for 250,000 men according to these figures. A large amount is already in store, and the rest is to be bought as appropriations become available for the purpose.

The nature of the military operations will largely govern the rapidity and ease of handling the army's disabled.

Thus in defensive operations, either in fortifications or in field works, there is no delay in collecting and treating the wounded; the element of transportation, always the most difficult problem for the medical department is simplified. The patients, providing there is shelter for them, are promptly handled, and loss of life from shock and hæmorrhage is lessened.

When a stationary enemy is attacked, the medical department, although likely to be confronted with an enormous number of wounded, is at least not obliged to lose much time in proceeding to work, for the hospitals and materials for treatment can usually under such circumstances, be prepared in convenient places, without hurry and after due deliberation. The wounded of assaulting parties, however, will usually fare badly unless the assault is successful. It will often be impossible to get at them until much suffering and loss of life have occurred from delay.

The most difficult of all conditions for the medical department is when two opposing armies operating in the open come into contact. Here prompt treatment of the severely wounded seems to be a matter of pure chance. With infantry, cavalry and artillery filling all the approaches to the field, and manœuvring over an extensive terrain; with all these approaches covered by the enemy's fire as far as he is able to accomplish this, the bringing up of the ambulances, to say nothing of the wagons containing the field hospitals, may be impossible for one or two

days. A retrograde movement, the coming of night, the occurrence of bad weather, all these may render impracticable the prompt removal of wounded. The dressing of wounds must be done by the men themselves or by their comrades, with only the limited help of the small regimental medical force, and deaths in large number from exposure, hæmorrhage or shock, are inevitable.

To conclude: the medical service of an army in modern war, must be a compromise between what is ideal and what is practical. It can never be made ideally efficient for *extraordinary* circumstances, without maintaining and paying for a force of men, and an amount of transportation out of all proportion to the fighting force, at a money cost that no nation will afford. Sufficient for the sanitation and treatment of the army under ordinary war circumstances, it should be; also for the final treatment of those disabled ones who reach the safe haven of a base or general hospital. But to treat on the field, to collect and remove the wounded in a great modern battle, without great loss of life from delay alone, is impossible, or at least impracticable.

Modern surgery requires that a wounded man be treated immediately, aseptically, and with as little movement of wounded parts as possible. Battlefield surgery is attended with loss of time, more or less inevitable dirt, and, above all, with unavoidable movements of the wounded parts in transportation.

No department is as dependent upon transportation as the medical. Healthy soldiers may carry food and ammunition enough for several days with no transportation except their own legs. A wounded man who cannot walk requires four men to carry him on a litter, for long distance; two at least for even the shortest distance. An ambulance can carry but four men stretched at full length; eight only who can sit up. It does not take much arithmetic in the light of some of the wounded rates recently received from Manchuria, to show that any medical department maintained in peace time, with reasonable regard for money cost, will in time of battle be necessarily unable to give that timely and perfect help to the wounded, that modern surgery demands.

To use the necessarily small force to the best advantage under given circumstances, is then the military problem of the medical department in every modern war.

Its military value as a factor in the ultimate outcome of the war, depends upon its efficiency, 1st, in preventing disease by sanitation and treatment of minor complaints, 2nd, in removing the encumbering wounded, the worst impedimenta that an army can have, and along these two lines primarily must the commanding general recognize the medical department as an essential part of his command, to be given due consideration in the tactical distribution of his forces for any proposed military operations.

To its patients and to the public the medical department must answer for its humanity and skill in medical and surgical treatment.

I have made only a very partial exposition of a many sided subject. Time forbids discussion of such important matters as the establishment and operation of general hospitals, hospital ships and cars, special handling of contagious and epidemic disease, the use of auxiliary organizations, such as the Red Cross, etc.

I have only tried to sketch as it appears to me what the work of the medical department with the army in the field should be. It is our pride that of all the staff corps, none is so intimately connected with the daily life of the men behind the guns. Their hardships and perils are ours. Without the sympathy and support of the line, and recognition of its true use, the work of the medical department is crippled, and its very real potentiality in the direct attainment of success is lost.

"SLEEPING SICKNESS."

THE following conclusions, from his observation of a case, are arrived at by H. Dupont: (1) From a symptomatological point of view: (a) A vesiculo-papular eruption, with itching, and later on eschars. (b) A gradual failing of the intellectual functions, and a tendency to sleep which becomes stronger and stronger till it ends in a deep sleep. (c) A progressive muscular atrophy. (d) Exaggerated reflexes. (e) Tachycardia. (f) Febrile symptoms especially manifested in the latter part of the disease. (2) From the microscopical point of view: By the presence of trypanosoma in the blood and cerebro-spinal fluid, increasing in number with the course of the disease.—S. M. DELOFFRE.

Enno Sander Prize Essay=1904.

THE RELATION OF THE MEDICAL DEPARTMENT TO THE HEALTH OF ARMIES.

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FOR the prevention of epidemic diseases in war the Medical Department of no army with which I am acquainted is at the present time efficient because it has not the power to make adequate preparation in peace, and because in war it is not given executive authority for its responsibility for sanitation is shared with all other corps and departments, and is thus lost in many channels. In this ambiguity the relations of the medical department to the health of armies is defective; the position is an anomalous one, and cannot be defended. To enable the medical department to undertake the larger sphere of duty, which is suggested in this paper, and which public opinion, with its greater knowledge of modern warfare, demands from it, the following proposals are made.

1. The specialization of Medical officers.
2. The creation of a sanitary service.
3. The creation of a subordinate medical service.
4. The reform of the Nursing Service.
5. The Reorganization of the Army Medical Corps (non-commissioned officers and men).
6. The creation of a National Ambulance Service.

These proposals will be separately considered, they have been already referred to, but the grounds on which they are based require further explanation. The specialization of medical officers

should be into three major groups namely physicians, surgeons, and sanitary or health officers. In the selection of candidates it will not be advisable to split up the profession in the way of specialities for the more general is the education of young medical officers the more useful will be their army career, but what is really necessary is to give those officers who show a special aptitude for any particular branch of medical science, the opportunity to cultivate it. Physicians should include officers skilled in tropical medicine, in fevers, and in the diseases of women and children. Surgeons would consist of operating surgeons, and specialists in ophthalmic, dental and aural surgery, etc., and the Sanitary group would consist of experts, and executive sanitary or health officers.

The employment of civilian physicians with armies in the field has been recently advocated on the grounds that army medical officers have not the knowledge and experience of dysentery, enteric fever and other diseases which are common in war. It is impossible to accept this conclusion for the greater number of army medical officers have had a large experience of these diseases in peace, it is especially true of the British medical service, which has had this experience in foreign garrisons and in small wars, and under the most diverse climatic conditions; this statement applies with equal force to the medical service of the regular army of the United States of America. It ought not to be necessary therefore to replace army medical officers by civilian physicians however desirable it may be to supplement their service in war; what however seems really desirable is departmental selection.

That army medical officers, who are confined to their military practice in peace, can in any great numbers be qualified for the post of operating surgeons is an impossibility; manual dexterity quickness of eye, and readiness of resource can only be gained by constant practice, therefore in time of war operating surgeons must be obtained from the civil profession, who practice in large centres of industry where trade accidents are numerous; the patriotism of the medical profession in all countries may be relied upon in times of national emergency. Army med

ical officers who show special aptitude, and who may be selected for the post of operating surgeon, should be deputed to civil hospitals, or should be associated in some other way with the work of profession in civil life. Armies, especially armies raised by voluntary enlistment, recruited from urban populations and engaged in manufactures, require to a large extent the services of specialists in dental, ophthalmic, and aural surgery.

The experts of the sanitary group would be bacteriologists, chemists and engineers, who need not be medical officers or military engineers; for some reasons it is desirable that they should be entirely independent of military authority for the nature of their work does not require military control. Fitness for office should alone determine their appointment and eminence in their particular line should be so unquestioned as to command respect for their opinions. Executive sanitary or health officers should belong to the medical department, and they should be in active professional work, but this leads up to the second proposal.

The necessity for an army sanitary service has obtained universal acceptance though its constitution, as we have seen, is a subject of controversy. The reader, who has followed this paper so far will be prepared to admit that strong reasons have been given for this service being formed and worked by the medical department; it is on these lines that the present proposal is made, and no difficulty is anticipated in carrying it out once agreement is reached as to what should be its executive and administrative units; it is a truism to say that the object aimed at is efficiency in war but the tendency during peace is towards economy consequently sanitary appointments are frequently made to stations and to districts without any reference to what is necessary for war.

The executive sanitary unit must be the regiment or corps unit; in war it is the composition of the force and not locality which determines the distribution of the sanitary service for the force is constantly changing, and occupying new ground; the organization for war therefore must be adopted in peace, without it the sanitary service will never be efficient. To carry this out a medical officer should be appointed for a term of years to each

regiment as the sanitary staff officer of the Colonel Commanding (a) to advise on all questions connected with the health of the regiment, and (b) to have command of its sanitary establishment, all other duties, which are now performed by the medical officers attached to regiments during war, should be performed by these officers in peace; they should make themselves thoroughly acquainted with the health of the men, they should investigate all cases of zymotic disease, and with this object they should keep registers of barracks and companies.

The regimental sanitary establishments of non-commissioned officers and men should be supplied by the sanitary service, but no objection would be made to regiments enlisting their own, provided that for training and for passing certain qualifying tests they came under the orders of the sanitary service, only a small number would probably be so enlisted. It will be more convenient to defer further remarks on this subject until the reorganization of the medical corps is being considered.

The brigade is suggested as the administrative unit of the sanitary service, because of its compactness and because its component parts are not likely to be long separated, which is so important as it is not office work and paper superintendence which are required, but personal inspection. An active sanitary administrative officer of ripe experience supervising the health of his brigade, and advising the sanitary staff officers attached to regiments would do much to secure the military efficiency of the troops in war. I know of no more necessary reform, or one which holds out a greater promise of permanent usefulness, besides it would save the State the vast sums of money, which are now squandered in making good former neglect; without it the relation of the medical department to the health of the army it ministers to can never be satisfactory.

The creation of a subordinate medical service logically follows from the specialization of the medical department, without it co-operation is impossible for as already shown a great gulf separates medical officers from the non-commissioned officers and men of the army medical corps. If medical officers are to be set free from routine duties, many of which at the present time they

alone are capable of performing, it must be through the help of an intelligent and well educated subordinate service. The technique demands it; whether we consider hospital economy, sanitation, or the care of the wounded on the battlefield we are confronted with the same necessity. There may be here and there found in the corps some exceptions, but what has to be considered is the capacity of the corps as a whole. The progressive spirit of the age demands from medical officers a standard of excellence, which some twenty or thirty years ago was unattainable. Has the whole corps shared in this progress? Decidedly not, nor is it possible with the present system of recruitment and training.

Candidates for the subordinate medical service should be youths between 16 and 18 years of age, of sound health, and of good moral character preference being given to the sons of warrant and non-commissioned officers, and of old soldiers, which would be a recompense for good service, besides these lads would bring with them some idea of military life and being educated in military schools their education could be directed for this purpose. After undergoing a preliminary competitive examination those selected should be sent to a training college or school, and after passing out, they should be posted on probation for a year to a large military hospital. Candidates thus selected and trained would be of the greatest assistance to the medical department both in peace and in war; medical officers would be relieved from much anxiety, and would be able to devote themselves to the higher duties of their profession, and the chain of responsibility would be strengthened in its weakest part. If public opinion is to hold the medical department responsible for failure in war it must either sanction the creation of this service, or the establishment of medical officers must be largely increased to an extent, which would be financially ruinous.

The substitution of female nurses for male attendants has found general acceptance; so far as military conditions will permit it should become universal, therefore they should be employed in all hospitals during peace, and in general and stationary hospitals in war. Male attendants are only required in detention wards, in field hospitals, and in special wards for prisoners, luna-

tics, and venereal patients; women nurses have greatly added to the comfort of the sick, have relieved the medical department of many anxieties, and have raised the whole tone of military hospital life. It is a reform which is gladly welcomed and all the more as shadowing a fairer distribution of work between men and women in the near future; to relegate men to men's work will be a national gain.

For the purpose of this paper it is taken for granted that a subordinate medical service will be created, but, whether that be so or not, the reorganization of the medical corps cannot be very long deferred, for the medical departments must be divided into two branches (a) medical, and (b) sanitary. That is one of the lessons of modern wars which cannot be neglected. The reform of the nursing service facilitates this arrangement and so also does the amalgamation of the bearer company with its field hospital, which has been advocated by Sir Frederick Treves and by many others. The medical branch should be subdivided into (1) sick attendants, (2) cooks, (3) clerks, and (4) general duty orderlies. Sick attendants will be employed during peace within the limits assigned in the preceding paragraph, and in war in attendance on the wounded on the battlefield and during their removal as well as for duty in field hospitals. The standard of cooking in military hospitals requires improvement; it is wasteful and often coarsely done; the training of hospital cooks should be altogether on a higher plane. The clerical duties of the medical department in administrative offices and in hospitals are onerous and require a steady and hardworking staff. The general duty orderlies will be employed in supply and store duties, in the care of government property, and as the designation implies, in the general duties of the hospital, relieving nurses of certain manual work, which men can best perform.

In the proposal for the creation of the sanitary service its administrative and executive units were outlined but the consideration of the details of its organization was postponed as being more appropriate under the reorganization of the medical corps for the medical department must be both its master and teacher. At the present time there is a general movement in favor of hav-

ing large district hospitals in which all the important cases of sickness which occur in the command would be treated; it is a very desirable arrangement not only in the interest of the sick, but for the education of the medical corps provided that nothing is done to lessen the responsibility of the officer commanding the hospital or to interfere with his authority over the establishment.

Of course such a position would be an impossible one without co-operation. Hence hospitals are organized into medical and surgical divisions each under its own immediate head. But I submit that this is insufficient, and that these hospitals require a separate sanitary establishment specially trained and under the command of a duly qualified officer who would be the sanitary staff officer of the officer commanding the hospital.

The suggestion is that the sanitary service should be organized in companies, the headquarters of the company being posted to the district hospital, and the detachments from it would be the executive units belonging to regiments, etc., serving in the district. The non-commissioned officers and men would be graded as follows. Warrant officers as first class sanitary inspectors, sergeants as second class, and corporals as assistant sanitary inspectors after being specially trained and after passing certain qualifying examinations for advancement to each grade; they would supervise the work and instruct the men of the branch in practical sanitation.

The adoption of these proposals imposes certain obligations upon the medical department and upon military authority. Briefly the position is restated as follows. If the health control of the medical department of armies is to be effective the department must fit itself for the duty by the high professional attainments of its officers, by the efficiency of its subordinate establishments, by co-operation and by a readjustment of its sanitary and medical duties to meet the altered conditions of modern warfare. On the other hand, military authority also must recognize this altered state of affairs, and must accord to the medical department greater freedom of action; if both are satisfied that military efficiency in war depends in the first place upon the health of the army there can be no difficulty in coming to an agreement; cer-

tainly, if the sphere of duty of the medical department remains restricted there will be always military inefficiency and medical failure in war.

Supposing that these proposals are adopted, one of the good results would be that the medical department would be so associated with the daily life of the army that in medical as well as in sanitary matters the medical corps would be its instructor. The officers and men of the medical branch doing duty in district hospitals would instruct the troops how to apply the first aid dressing, and what the general care of the wounded on the battlefield should be. While the sanitary branch of the corps, especially the executive units, would instruct regiments, etc., in personal hygiene, and in all the other matters which make for health especially in relation to environment and to the prevention of zymotic diseases.

For the evolution of the medical department on the lines which are suggested in this paper it will take time, and time, as we know, is all important besides there will be wanted the experience, which will teach what should be omitted, what corrected, and what should be added; it is progress not perfection which is aimed at. Even with the most perfect medical organization, according to our present knowledge, it may happen in war that there may be periods of great sickness through sanitary faults and through circumstances over which a regenerated medical department has had no control. Of this contingency we have had no experience for the medical department of no army up to the present time has been so organized that it could have dealt satisfactorily even with the vices of sanitation which were of that army's own making.

Be this as it may, we know that in the great battles of the future it will be impossible for the medical department of any army to succor the wounded on the day of battle, and that much suffering and loss of life will be the consequence. I have recurred to this question because of its supreme importance, and because, until it is remedied as far as human effort can do so, the relations of the medical department to the health of armies will not be satisfactory. The creation of a subordinate medical service and

the reorganization of the medical corps with the adoption of those other measures which have already been suggested will go a good way towards giving more skilled medical attendance in the field, but the true remedy is the creation of a national ambulance service. To treat this subject except in outline is impossible within my present limits, it will be sufficient to say that what is wanted is a homogeneous national ambulance service which can only be obtained by the exercise of some self-denial on the part of various societies, which will place the national good before social considerations. Sir Frederick Treves, in a letter to the *British Medical Journal* recently called attention to the admirable work done by the Japanese National Ambulance Society in the Russo-Japanese war, and the creation of a similar service has recently been suggested for the British Army.* Should this proposal meet with general acceptance it is hoped that it will lead to an international ambulance service, which would work under rules framed by another Geneva Convention; the present rules in any case require revision.

The social relations of the Medical Department to armies will be considerably modified should these proposals be adopted. With the personal side of the question I am not concerned except in so far as it influences public duty. But there is no doubt that from them there will grow up a greater sympathy between the medical department and armies which would be to the public advantage. It is said that a good General studies the character of his opponent and modifies his plans accordingly; if knowledge of character be useful to an opponent surely it is of not less account to men working for the same object. Social intercourse with the play of a little imagination and tact, a quality by the way which is often misapplied, will smooth over many difficulties.

The rank and title of medical officers have not yet been discussed though it is germane to the subject. I have thought it better to discuss the duties of the medical department and the position it should hold in reference to them in peace and in war for from this description the necessity of granting medical officers military rank and titles is incontestable. The principal on which this is based is that every individual whose duty brings him into

*See Letter: "A National Ambulance Service" in the July 1904 number of the *United Service Magazine*.

contact with the soldier must have a recognised military position with which the title must correspond. To no service does this principle apply more closely than to the military medical service; the fact that the medical profession is the most altruistic of all professions enhances its claim and makes it still more necessary that the military rank and titles of medical officers should conform to those of the armies they belong to in every respect.

This question will probably occur to the reader. Why is it that, in discussing the relations of the Medical Department to the health of armies, the writer has dealt so largely with details of organization and with collateral subjects? It is because in all schemes of army organization and of departmental reforms there has been hitherto a tendency to be satisfied with a name or with some one special measure. As for instance changing divisions into districts, and districts into army corps, or giving them some territorial designation. It really would not matter only that people, in other words the Electorate, who are unacquainted with military affairs, become thereby lulled into a sense of false security. Again some special measure has been adopted such as (taking the Medical Department as an example) the amalgamation of the bearer company with its field hospital, or the creation of a Medical Staff College, and from them, admirable and most desirable as they are, medical efficiency in war is expected. In my opinion it would be as reasonable to expect that a man would be protected from the cold on a winter's day by dressing him in a top hat and frock coat only. I use this rough and ready illustration to show that the Medical Department must be built up bit by bit from the foundation, and must be maintained in peace as in war. It is this belief which has induced me to write this paper, which embodies the views I had formed of the relations the Medical Department should hold to the health of armies long before the Spanish American and the South African Wars occurred, and which these wars have so amply justified.

Contemporary Comment.

PERSISTENT DIARRHOEA WITH PROFOUND ANEMIA, APPARENTLY DUE TO BLOOD DESTROYING PROTOZOA IN THE COLON.

TRANSLATED BY LIEUTENANT SAMUEL M. DELOFFRE,
ASSISTANT SURGEON IN THE UNITED STATES ARMY.

PRIVATE C. of the colonial infantry, Tonkin, was admitted to the military hospital at Marseilles January 19, 1904, with diagnosis of "chronic diarrhoea and malarial cachexia." Age thirty-five. Thirteen years service. Family history negative.

Previous history: Severe attack of typhoid fever in 1891, lasting three months. Attack of dysentery in 1895 in Martinique, lasting eight months; recovery without hepatic complications.

History of present disease: In 1900, at Hanoi, Tonkin, he had an attack of malaria, followed in May by an insidious, persistent and resistant diarrhoea, averaging five to six stools in twenty-four hours, sometimes as many as fifteen. No blood nor glairy substance at any time found in them. This diarrhoea persisted for over two years, ceasing in September, 1902. He was free from any intestinal trouble up to March 1903, when, on returning to Tonkin, the diarrhoea again appeared and persisted till his return to France at the end of the year.

CLINICAL EXAMINATION.

Objective Symptoms.—On inspection his appearance does not resemble that of the ordinary diarrhoeas. There is profound anemia, puffiness under the eyes, skin infiltrated, general edema, of the lower extremities and scrotum, tongue coated, dorsum of hands pit on pressure, abdomen enormous from ascites caus-

ing severe dyspnoea on the slightest motion or on eating. No evidence of syphilis nor of alcoholism.

Percussion and auscultation: lungs negative, heart dulness slightly increased, heart sounds muffled, especially at base; no organic murmurs; haemic murmur at the pulmonary cartilage transmitted to carotids; pulse seventy, feeble. Liver slightly diminished in size, but not enough to account for the ascites from portal obstruction. Spleen cannot be palpated, no enlargement on percussion. No pain nor tenderness over kidneys. Skin dry and rough.

Subjective Symptoms.—Anorexia, acid regurgitations, yellow serous stools, five or six per twenty-four hours, containing yellow lumps. Urine scanty, rich in urates, no sugar, no albumen, urea twenty-one grams per litre, no urobilin. Genito-urinary examination negative. Nervous system not involved. Weakness extreme, has lost twenty-five kilograms in the last six months.

Blood examination negative; no haematozoa, no melaniferous leucocytes, no free pigment, nor other forms of parasites. Red corpuscles 842,200, numerous giant corpuscles, no nucleated reds, moderate leucocytosis, no large mononuclear, no polynuclear eosinophiles, a few lymphocytes.

In brief we have a case of persistent diarrhoea, with an edema independent of the heart or kidneys, and an anemia which is not caused by malarial nor other organisms.

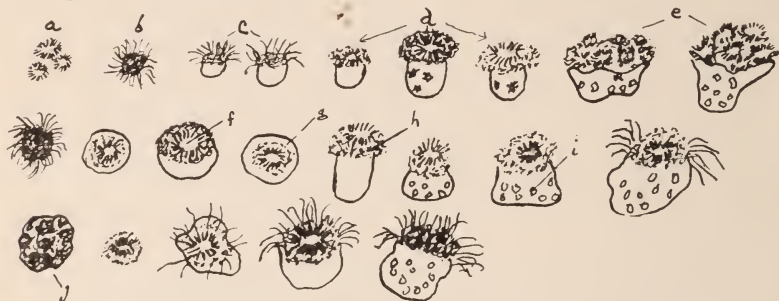
CLINICAL HISTORY.

Therefore a parasite of a higher order was thought of, probably located in the intestines, similar to the ankylostomum, and capable of producing the observed symptoms. A microscopical examination was made of the stools, and a blood destroying protozoa which to our knowledge has never been identified was found in abundance. A small particle of fecal matter was taken up with a pipette and examined, without staining, and with a No. 1 eye piece and Verick's No. 2 and 6 objectives.

Thus it was easy to detect the presence of a polymorphous parasite whose different forms seem to be due to different stages of evolution, a ciliated infusorium analogous to the Paramesium of Malmsten, found in the mucus of lenteric diarrhoeas and acute dysenteries in Cochin China.

The simplest form of the parasite is a gray, granular, spherical mass, with long slender cilia growing in every direction, like a horse chestnut. At a more advanced stage it takes the form of a sort of transparent vesicle, surmounted by the ciliated granular substance.

The vesicle continues to grow larger, the cilia become rarefied, and in their center appears a circular mouth whose borders are supplied with short vibratory cilia. In the vesicle may be plainly seen as many as fifteen globules, red, some still spherical others mulberry shaped, floating like boluses of food, and colored by hemoglobin. Sometimes a distinct constriction appears between the vesicle and its granular head, giving the parasite a mushroom shape, with swollen head and base. The vesicle still increases



Different forms of the parasite observed in the preparations.

a. Elements of the zooglea, grouped without capsule. *b.* A young and ciliated organism. *c.* Formation of the vesicle. *d.* Adult hematophagous infusoria. *e.* Formation of new zooglea. *f.* Ciliated stroma. *g.* Transparent vesicle. *h.* Granular substance composed of nuclein. *i.* Mulberry shaped red globules. *j.* Encapsulated zooglea.

in size and the cephalic disk becomes deformed, its edges become irregular and budding; it segments and splits up, and globular ciliated bodies appear, resembling cypress balls. Without doubt this is a new generation of parasites. We have never seen this parasite in active motion, probably on account of defective technique, as the stools should have been examined as soon as passed, and in a warmed, serous fluid.

The only attempt at staining was with picro-carmin: the granular disk was stained by the carmin, and the vesicle a light yellow by the picric acid. The exact seat of the parasite was not determined, whether the small or large intestine; but large

enemata of silver nitrate were clearly indicated. On the 3d, 4th, and 5th of February these were given in the strength of 1 to 1000 and the parasite disappeared within forty-eight hours. The stools remained liquid and yellowish green for three days, then became thicker and more solid. The edema of the face and extremities as well as the ascites disappeared rapidly, with profuse diuresis. On the 10th of February his condition was wonderfully improved, and on the 14th he was having two nearly normal stools a day. On the 19th he had 2,557,500 reds, and his condition steadily improved.

Without doubt we were dealing with a parasite accidentally ingested with polluted water, and found only in Tonkin, as the patient had never left Hanoi. This parasite was capable of multiplying itself rapidly in the large intestine (as shown by the treatment), and was highly hematophagic in its action, capable of producing death by anemia. The number of parasites must have been enormous,—eight or ten could be seen in one field. Whether they have the power of fixing themselves on the mucous membrane and sucking the blood cells, or whether they obtain these cells from small ulcers of the membrane, would be interesting to know.—*Le Caducée*.

WOUNDS PRODUCED BY THE JAPANESE RIFLE.

SOME years ago when the proposal to adopt the Meiji rifle for the Japanese Army was under consideration, Dr. Kikuchi reported strongly in favor of it on the ground that its bullets would have greater stopping power, though the wounds it would make would heal quickly. The rifle has the smallest calibre of all existing rifles, and its trajectory is very flat. Dr. Kikuchi, who is a staff surgeon in the medical department of the Japanese army, has now written a report claiming that the experience gained during the earlier stages of the present war has fully confirmed his conclusion. The stopping power of the bullet he attributes to its cutting clean through arteries and veins, causing a large loss of blood and consequent weakness and faintness, so that the man is unable to proceed. In the

wounded Russians who fell into the hands of the Japanese after the battle of Yalu, healing occurred with great rapidity, and at the date of Dr. Kikuchi's report, forty days after the battle, even the most severely wounded were convalescent. One of these patients had been shot through the lungs, and must have lost a large quantity of blood, estimated as much as a pint and a half or a quart. Another case which recovered was shot in the stomach. These statements are confirmed by a Central News telegram from Vladivostok, which states that in the cases of about 100 officers and 6,000 men treated in the Russian Military and Red Cross Hospitals for bullet wounds healing took place rapidly. Even in cases in which the chest or liver were penetrated recovery took place, as also in one instance of a bullet wound traversing the head. Cases of this kind were, we believe, not infrequent during the Boer war, in the case of wounds produced both by the Mauser and the Lee-Metford rifles.—*British Medical Journal*.

ABDOMINAL HERNIA AND ITS RADICAL CURE IN THE ARMY.

HERNIA (Herhold, of the German Army) should be rarely considered as the result of military service. The latter aggravates it however, and renders the man unfit for duty. Its radical cure, often done in the French and Austrian Armies, is rarely done in the German service. (1) All men who are unfit for duty on account of hernias should be operated on if willing. (2) Officers, non-coms, and candidates should be operated on. (3) Soldiers whose hernia do not prevent their doing duty, should not be operated on. (4) The operation of choice is Bassini's. (5) The radical cure should only be undertaken in the presence of absolute asepsis. (6) It should only be done by a medical officer, especially trained in surgery.—S. M. DELOFFRE

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THE HONORABLE WILLIAM EUSTIS,
MILITARY SURGEON AND SECRETARY OF WAR, -1753-1825

Editorial Expression.

Medico-Military Secretaries of War.

WILLIAM EUSTIS, MILITARY SURGEON AND
SECRETARY OF WAR.—1753-1825.

NO citizen of Massachusetts was more distinguished in his day than the tenth governor of the commonwealth, the eminent military surgeon and Secretary of War, William Eustis. Secretary Eustis was the second son of Benjamin Eustis a prominent physician of Boston, where he first saw the light on June 10, 1753. After an excellent preliminary training at the Boston grammar school under the famous Mr. John Lovell, he entered Harvard University at the age of fourteen and took his baccalaureate degree at that institution at the Commencement of 1772.

He then entered upon the study of medicine in the office of Dr. Joseph Warren, then a famous physician and later a celebrated soldier and patriot. In this capacity, young Eustis was a pronounced success. An attractive physique, handsome features, polished manners and a fine address combined with a generous disposition, an amiable nature and a cultured mind to commend him both to his preceptor and to his clientele, in the treatment of which, his position led him to participate.

He had outgrown his novitiate in medicine and had become rather a friend and associate than a student, when on April 19, 1775, an express arrived in Boston with the intelligence of the affair at Lexington. When he heard the news, Dr. Warren turned over his patients to young Eustis and galloped away to the scene of action, whither he was followed by his young assistant after the proper visits had been made to his patients. Here Dr. Eustis

had his first military experience in treating the wounded on that historic field.

When it became evident that war was impending, Dr. now General Warren tendered a regimental surgeoncy to Dr. Eustis knowing by personal observation his fitness for the office, and he was appointed Surgeon of the Massachusetts Artillery regiment then at Cambridge. He accompanied the troops to New York and soon thereafter was appointed Hospital Surgeon. He was offered a commission as Lieutenant Colonel of Artillery by General Knox, but declined preferring to continue work along the line of the profession to which he had determined to devote his life.

From 1777 practically to the close of the War Dr. Eustis had charge of a military hospital established in and about the spacious mansion of Colonel Beverly Robinson, a Royalist, on the Hudson River over against West Point. Here also Benedict Arnold had his headquarters at the time of his defection from the American cause, and when he suddenly fled to the enemy, Dr. Eustis was called to care for Madame Arnold who was seized with violent hysterical paroxysms upon learning of her husband's trouble. It was a remarkable coincidence too that Dr. McHenry, then a member of Washington's staff and also afterwards Secretary of War, should have been present on this occasion. The professional services of Dr. Eustis were animated by a genuine interest in his profession as was evident from his declination of the commission as Lieutenant Colonel of Artillery proffered him by General Knox. He remained then in the Medical Department to the close of the Revolution when he was mustered out with the rest of the forces and resumed his practice in Boston.

In 1786 he was conspicuous in opposition to Shays's Rebellion, volunteered his services in the expedition for the capture of Shattuck, one of the insurgent leaders, and acted as Surgeon on the staff of General Lincoln commanding the forces which subdued the insurrection in January, 1787. When in the same year an expedition was projected to defend the frontiers from Indian invasion he also accepted a commission as surgeon to the Massachusetts regiment, in anticipation of appointment to the position

of Surgeon General, but the plan failed to materialize on account of the abandonment of the expedition and the disbandment of the forces, and he again retired to private practice.

About this time he began gradually to occupy himself with public affairs. In 1788, he was chosen a member of the General Court for Boston and repeatedly re-elected until 1794; he was also for two years a member of the Board of Council; from 1800 to 1805 he represented the Suffolk District in Congress, where his services made so favorable an impression that in 1809 he was appointed Secretary of War in the Cabinet of President James Madison, an office which he filled with high credit until after the surrender of Hull in 1813, a period when the stirring events leading up to and inaugurating the Second War with Great Britain rendered it of the highest importance to the budding nation. He was succeeded at the War Department by General John Armstrong of Carlisle, Pennsylvania.

His eminent talents for public affairs, however, were not allowed to be wasted upon his relinquishment of the War portfolio, and in 1814 he was appointed Minister to the Hague, where he served successfully a four years' term. Upon his return to the United States he was elected to Congress from the Norfolk District which he continued to represent for four successive sessions. In 1823 his career was suitably crowned by election as Governor of his Commonwealth, and he died in office at Boston two years later at the ripe age of 72.

THE INFLUENCE OF FATIGUE ON MARKSMANSHIP.

AFTER some carefully conducted experiments (*Le Caducée*), with sharpshooters, Dr. Benech, of the 20th army corps, arrived at the following conclusions: A well regulated march, with an equipment of twenty kilos, at an average speed of one kilometer in twelve minutes, by trained soldiers, and kept up from one to eight hours, is without any influence whatever on the marksmanship of the men. It is also without perceptible influence on the sensibility of the retina, the duration of retinal impressions, the dynamometric force of the muscles of the forearm and trunk, and on the co-ordination of movements made necessary by the aiming of the piece.

SAMUEL M. DELOFFRE.

News of the Services.

The following officers were elected to membership in the Association of Military Surgeons, to date from January 1, 1905, at the recent ballot of the Executive Council.

PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

Acting Assistant Surgeon Frederick Barnard Adams.
Acting Assistant Surgeon E. Alexander.
Assistant Surgeon Francis Asbury Ashford.
Acting Assistant Surgeon Charles Williams Bailey.
Acting Assistant Surgeon Wyatt Barnes.
Acting Assistant Surgeon Lewis C. Bean.
Acting Assistant Surgeon Robert Ignatius Bowie.
Acting Assistant Surgeon Frank Boyd.
Acting Assistant Surgeon Eugene Henry Bryan.
Assistant Surgeon John Thomas Burkhalter.
Passed Assistant Surgeon Taliaferro Clark.
Acting Assistant Surgeon Frederick Henry Cleaves.
Acting Assistant Surgeon Alta F. Cook.
Acting Assistant Surgeon Francis Duffy.
Acting Assistant Surgeon Joseph C. Elfers.
Acting Assistant Surgeon Thomas C. Frary.
Passed Assistant Surgeon Lunsford D. Fricks.
Surgeon John Godfrey.
Acting Assistant Surgeon Thomas H. D. Griffiths.
Acting Assistant Surgeon Fleetwood Gruver.
Acting Assistant Surgeon Albert L. Gustetter.
Acting Assistant Surgeon Janvier H. Hamilton.
Acting Assistant Surgeon Ardon Philo Hammond.
Acting Assistant Surgeon Benjamin Iverson Hicks.
Acting Assistant Surgeon Melvin M. Hopkins.
Acting Assistant Surgeon James Spencer Hough.
Acting Assistant Surgeon Lea Hume.
Surgeon Fairfax Irwin.
Acting Assistant Surgeon Allen Carter Jones.
Passed Assistant Surgeon John W. Kerr.
Acting Assistant Surgeon Julius Caesar Koosher.
Passed Assistant Surgeon William Alfred Korn.
Acting Assistant Surgeon Samuel D. W. Light.
Acting Assistant Surgeon William J. Linley.
Passed Assistant Surgeon Leslie Leon Lumsden.
Acting Assistant Surgeon Robert Lee McMahon.
Acting Assistant Surgeon Harrington Marr.
Acting Assistant Surgeon William Castein Mason.
Acting Assistant Surgeon Garland P. Moore.
Surgeon James Clifford Perry.

Assistant Surgeon Claude Connor Pierce.
 Acting Assistant Surgeon Stacy A. Ransom.
 Acting Assistant Surgeon William E. Rice.
 Acting Assistant Surgeon Charles A. Sheely.
 Acting Assistant Surgeon John Thomas Shepherd.
 Acting Assistant Surgeon Henry Cheever Sibree.
 Assistant Surgeon Frederick C. Smith.
 Acting Assistant Surgeon Arthur Edward Spohn.
 Assistant Surgeon Edward Maples Steger.
 Acting Assistant Surgeon John W. Stevenson.
 Acting Assistant Surgeon William John Sheaff Stewart.
 Acting Assistant Surgeon Charles Sidney Stoddard.
 Acting Assistant Surgeon William C. Todt.
 Acting Assistant Surgeon Frederick Townsend.
 Acting Assistant Surgeon Wesley Townsend.
 Passed Assistant Surgeon Frederick Eugene Trotter.
 Acting Assistant Surgeon Frederick R. Underwood.
 Surgeon Eugene Wasdin.
 Acting Assistant Surgeon William Amasa Weldon.
 Passed Assistant Surgeon Mark Johnston White.
 Acting Assistant Surgeon R. C. White.
 Assistant Surgeon William Martin Wightman.
 Acting Assistant Surgeon Stacy D. Williamson.
 Acting Assistant Surgeon Richard Wilson.

U. S. NAVY.

Passed Assistant Surgeon Frederick A. Asserson.
 Surgeon Charles Perry Bagg.
 Surgeon John W. Baker.
 Assistant Surgeon James Lyman Belknap.
 Surgeon Henry Clay Eckstein.
 Surgeon James Gaven Field.
 Passed Assistant Surgeon Will Melville Garton.
 Assistant Surgeon Charles P. Henry.
 Acting Assistant Surgeon Harry Weston Judd.
 Surgeon Cary Devall Langhorne.
 Assistant Surgeon Norman T. McLean.
 Surgeon William Martin.
 Assistant Surgeon Robert H. Michels.
 Acting Assistant Surgeon Julian Taylor Miller.
 Assistant Surgeon Owen Joseph Mink.
 Assistant Surgeon William M. Nickerson.
 Assistant Surgeon Winfield Scott Pugh, Jr.
 Assistant Surgeon Perceval S. Rossiter.
 Assistant Surgeon Harold W. Smith.
 Surgeon Henry Stewart.
 Assistant Surgeon Robert Earl Stoops.

U. S. ARMY

Contract Surgeon Ira Alphonso Allen.
 Contract Surgeon Henry David Brown.
 Contract Surgeon Leighton R. Cornman.
 Contract Surgeon James B. Ferguson.
 Lieutenant Nelson Gaper.
 Major Simon P. Kramer, U.S.V.
 Contract Surgeon Julian A. Mead.

Contract Surgeon Luke B. Peck.
 Contract Surgeon Louis G. de Quevedo.
 Lieutenant Edward P. Rockhill,
 Contract Surgeon Frank W. Ross.
 Contract Surgeon Ernest F. Slater.
 Major Allen Macy Smith.
 Major William Rudolph Steinmetz.
 Lieutenant Gideon M. Van Poole.
 Captain William C. Warmsley, U.S.V.
 Captain Samuel M. Waterhouse.
 Acting Assistant Surgeon John Henry Williard.
 Lieutenant Stanley G. Zinke.

NATIONAL GUARD.

Brigadier General Ernest L. Bell, N.G.N.H.
 Lieutenant Samuel Charles Gurney, Mich. N.G.
 Captain Samuel Joseph Kopetzky, N.G.N.Y.
 Lieutenant John Ray Newcomb, Ind. N.G.
 Captain J. T. Westermann, N.G.N.Y.

Lieutenant Colonel George W. Adair, U.S.A., granted one month's leave.
 Assistant Surgeon W. A. Angwin, U.S.N., ordered from the Naval Medical School to the Naval Academy.

Lieutenant Howard H. Baily, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Major John M. Banister, U.S.A., assigned to duty at Fort Riley.

Lieutenant C. J. Bartlett, U.S.A., leave of absence extended twenty days and ordered from the Hot Springs General Hospital to Fort Miley.

Assistant Surgeon J. L. Belknap, U.S.N., ordered from the Naval Medical School to the Narragansett Bay Naval Hospital.

P. A. Surgeon F. L. Benton, U.S.N., ordered from the Philadelphia Naval Recruiting Station to the Naval Medical School.

Major H. P. Birmingham, U.S.A., ordered to make medical and sanitary inspections at Forts Clark, Bliss, Sill, Reno and Logan H. Roots; and transferred from the Department of Texas to Fort McPherson, Ga.

P. A. Surgeon L. W. Bishop, U.S.N., commissioned P. A. Surgeon with the rank of Lieutenant, and ordered from the *Southery* to the Naval Medical School.

A. A. Surgeon C. T. Blackburn, U.S.N., ordered from the *Culgoa* to recruiting duty ashore.

P. A. Surgeon E. M. Blackwell, U.S.N., ordered from the *Castein* to the Naval Station, San Juan, P. R.

P. A. Surgeon Rupert Blue, P.H.&M.H.S., ordered from the Plague Laboratory, San Francisco to Norfolk,

Surgeon E. S. Bogert, U.S.N., ordered from the Naval Academy to the *West Virginia*.

P. A. Surgeon B. W. Brown, P.H.&M.H.S., ordered from Evansville to Louisville.

Lieutenant Henry L. Brown, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

P. A. Surgeon C. S. Butler, U.S.N., ordered from the Naval Station San Juan, P. R. to the *Castein*.

Dr. Caspar R. Byars, U.S.A., ordered from Bay City, Texas to Fort Sam Houston.

Major Edward C. Carter, U.S.A., relieved from duty as Commissioner of Health of the Philippine Islands and ordered to return to the United States.

Major William F. Carter, U.S.A., relieved from duty in the Philippines.

Assistant Surgeon R. B. Chapman, U.S.N., ordered from the Naval Medical School to the Mare Island Naval Hospital.

Assistant Surgeon A. B. Clifford, U.S.N., ordered from the Naval Museum of Hygiene and Medical School to the New York Navy Yard.

Assistant Surgeon H. W. Cole, Jr., U.S.N., ordered from the Naval Medical School to the Norfolk Naval Hospital.

Dr. R. King Cole, U.S.A., granted two months leave.

Captain C. G. Collins, U.S.A., relieved from duty in the Philippines.

Surgeon F. J. B. Cordeiro, U.S.N., ordered from the *Solace* home to await orders.

P. A. Surgeon G. M. Corput, P.H.&M.H.S., ordered from the South Atlantic Quarantine Station to New Orleans.

Surgeon R. P. Crandall U.S.N., ordered to the *Hancock*.

Lieutenant Robert M. Culler, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

A. A. Surgeon V. Dabney, U.S.N., ordered from recruiting duty to the *Culgoa*.

Lieutenant William R. Davis, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Assistant Surgeon P. T. Dessez, U.S.N. ordered from the *Kentucky* to the Norfolk Naval Hospital for treatment.

Medical Director Dwight Dickinson, U.S.N., ordered to the Portsmouth Navy Yard and Naval Hospital.

Medical Inspector S. H. Dickson, U.S.N., ordered from the *Kearsarge* to the *Maine*.

Medical Director N. H. Drake, U.S.N., ordered from the *Hancock* to the Norfolk Navy Yard.

P. A. Surgeon J. M. Eager, P.H.&M.H.S., ordered to duty in the Bureau at Washington.

Lieutenant William R. Eastman, U.S.A., relieved from duty in the Philippines.

Major Guy L. Edie, U.S.A., ordered to proceed to the Philippine Islands and return as Attending Surgeon to the Secretary of War.

Assistant Surgeon W. G. Farwell, U.S.N., ordered from the Naval Medical School to the New York Naval Hospital.

Medical Director W. G. Farwell, U.S.N., ordered from the Portsmouth Naval Hospital to his home preparatory to retirement; retired from active service by reason of the age limit; and ordered to the Philadelphia Naval Recruiting Station.

Surgeon J. G. Field, U.S.N., ordered from the *Bennington* to the *Solace*.

Surgeon H. B. Fitts, U.S.N., ordered from the *Buffalo* to the *Lawton*.

Captain Clyde S. Ford, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

P. A. Surgeon G. T. Freeman, U.S.N., ordered to the Olongapo Naval Station.

Lieutenant Paul L. Freeman, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Major E. B. Frick, U.S.A., ordered to take charge of the Chief Surgeon's Office, Department of Dakota, during that officer's absence on leave.

A. A. Surgeon John Frick, P.H.&M.H.S., ordered from Laredo, Tex. to Tampico, Mex.

P. A. Surgeon L. D. Fricks, P.H.&M.H.S., ordered from the New York Immigration Depot to Castries, St. Lucia, W. I.

P. A. Surgeon F. M. Furlong, U.S.N., ordered to special duty in the Bureau of Medicine and Surgery.

Assistant Surgeon D. Cather, U.S.N., ordered from the New York Naval Hospital to the Newport Naval Training Station.

Major William W. Gray, U.S.A., ordered from Fort McPherson to Atlanta, Ga., for duty as Chief Surgeon, Department of the Gulf.

Assistant Surgeon C. T. Grayson, U.S.N., ordered from the Naval Medical School to the Washington Marine Barracks.

Captain Henry S. Greenleaf, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

Surgeon E. J. Grow, U.S.N., commissioned Surgeon with rank of Lieutenant Commander.

P. A. Surgeon S. B. Grubbs, P.H.&M.H.S., ordered to Chicago.

Surgeon A. G. Grunwell, U.S.N., commissioned Surgeon with rank of Lieutenant Commander.

P. A. Surgeon M. K. Gwyn, P.H.&M.H.S., assigned to command of the South Atlantic Quarantine Station.

Colonel John D. Hall, U.S.A., detailed as Chief Surgeon of the Department of California.

Dr. Joseph B. Hallwood, U.S.A., returned from the World's Fair Grounds to Fort Leavenworth, Kans.

Captain E. H. Hartnett, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

Lieutenant L. M. Hathaway, U.S.A., granted two months leave upon being relieved from duty in Alaska.

Assistant Surgeon R. Heiner, U.S.N., ordered from the Naval Medical School to the Washington Navy Yard.

Medical Inspector J. G. Henneberger, U.S.N., ordered to the Newport Naval Hospital.

Captain Louis T. Hess, U.S.A., relieved from duty in the Philippines.

Colonel John Van Rensselaer Hoff, U.S.A., has been selected by the Secretary of War as military attache with the Russian forces to relieve Colonel Valery Havard who was captured by the Japanese while gallantly standing by his colleague, Captain Judson, at the capture of Harbin.

Assistant Surgeon H. F. Hull, U.S.N., ordered from the Naval Medical School to the U.S.R.S. *Franklin*.

Lieutenant H. G. Humphreys, U.S.A., ordered to the Philippines on completion of course at Army Medical School, and granted one month's leave.

P. A. Surgeon J. H. Iden, U.S.N., ordered from the Narragansett Bay Naval Hospital to the Naval Medical School.

A. A. Surgeon W. H. Janney, U.S.N., detached from the *Cæsar* and resignation accepted.

Surgeon M. K. Johnson, U.S.N., ordered from the *Tacoma* to the *Maine*.

Dr. H. Newton Kierulff, U.S.A., ordered from the Presidio to duty on the *Buford*.

Surgeon I. N. Kite, U.S.N., ordered from the *Maine* to the *Kearsarge*.

Major John S. Kulp, U.S.A., ordered to the Philippines.

Surgeon C. D. Langhorne, U.S.N., commissioned Surgeon with rank of Lieutenant Commander.

P. A. Surgeon J. F. Leys, U.S.N., ordered to the Naval Medical School.

Major John Patrick Lombard, Surgeon 9th Regiment, M.V.M., died at Dorchester, Mass., March 21, 1905, aged forty-four.

Surgeon G. P. Lumsden, U.S.N., ordered from the Norfolk Navy Yard to the *Minneapolis*, and thence to the *Olympia*.

Major C. C. McCulloch, Jr., U.S.A., granted one month's leave.

Assistant Surgeon W. N. McDonnell, U.S.N., ordered from the Naval Medical School to the Naval Station Porto Rico and the *Alliance*.

Assistant Surgeon A. J. McLaughlin, P.H.&M. H.S., ordered from the Bureau to Naples, Italy.

Assistant Surgeon H. T. McLean, U.S.N., ordered from the Naval Medical School to the Chelsea Naval Hospital.

Surgeon G. M. Magruder, P.H.&M.H.S., ordered from Cincinnati to San Francisco.

Captain Clarence J. Manly, U.S.A., granted one month's leave, and ordered from Fort Brady to Fort Yellowstone.

Lieutenant Colonel Louis M. Maus, U.S.A., ordered from Fort Riley to San Antonio, Texas as Chief Surgeon of the Department of Texas.

Assistant Surgeon H. A. May, U.S.N., ordered from the Naval Medical School to the U.S.R.S. *Franklin*.

Major E. A. Mearns, U.S.A., granted three months sick leave.

Lieutenant R. F. Metcalfe, U.S.A., relieved from duty in the Philippines. Assistant Surgeon J. Miller, Jr., U.S.N., ordered from the *Buffalo* to the *Lawton*.

Lieutenant Reuben B. Miller, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

Assistant Surgeon O. J. Mink, U.S.N., ordered from the Naval Medical School to the New York Naval Hospital.

Major Edward R. Morris, U.S.A., relieved from duty in the Philippines.

Captain E. L. Munson, U.S.A., granted a month's leave of absence.

P. A. Surgeon J. A. Murphy, U.S.N., ordered from the Washington Navy Yard to the Naval Medical School.

Assistant Surgeon H. T. Nelson, U.S.N., ordered from the Naval Medical School to the Washington Naval Hospital.

Surgeon O. D. Norton, U.S.N., ordered from the *Olympia* to the *Minnesota*.

P. A. Surgeon K. Ohnesorg, U.S.N., ordered from the *Topeka* to the Naval Medical School.

Lieutenant Leartus J. Owen, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Assistant Surgeon W. D. Owens, U.S.N., ordered from the Naval Medical School to the Mare Island Naval Hospital.

P. A. Surgeon A. E. Peck, U.S.N., ordered from the *Pensacola* to the *Bennington*.

Dr. Harper Peddicord, U.S.A., granted three months leave.

Assistant Surgeon F. E. Porter, U.S.N., ordered from the Naval Medical School to the Norfolk Naval Hospital.

Dr. Newton A. Probert, U.S.A., ordered to accompany a Battalion of the 30th Infantry from Fort Crook to Fort Des Moines and to return thence to Fort Crook.

Surgeon J. C. Pryor, U.S.N., ordered from the Narragansett Bay Naval Hospital, to the Naval Medical School.

Major Ogden Rafferty, U.S.A., ordered to inspect the Medical Departments of posts in the Artillery District of the Potomac and Baltimore, with a view to determining the requirements at each station participating in the Army and Navy exercises in June next.

Major Henry I. Raymond, U.S.A., assigned to duty at Columbus Barracks.

Lieutenant E. P. Rockhill, U.S.A., granted a month's leave with permission to apply for a month's extension.

Lieutenant Edwin W. Rich, U.S.A., relieved from duty in the Philippines.

Major Gilbert E. Seaman of Milwaukee, Wis., has been promoted to that grade in succession to Major Joseph B. Whiting, Jr., deceased.

A. A. Surgeon F. E. Sellers, U.S.N., ordered home from the Culebra Naval Station.

P. A. Surgeon H. O. Shiffert, U.S.N., commissioned P. A. Surgeon

with the rank of Lieutenant, and ordered from the *Franklin* to the Naval Medical School.

Surgeon E. M. Shipp, U.S.N., ordered from the New York Naval Hospital to the Naval Medical School.

Assistant Surgeon F. M. Shook, U.S.N., appointed Assistant Surgeon with rank of Lieutenant J. G.

Lieutenant E. D. Shortlidge, U.S.A., ordered from Fort Miley to the Hot Springs General Hospital.

Colonel R. G. Silverthorne, McFarland, Kans., has been commissioned as Surgeon General of Kansas.

Surgeon G. T. Smith, U.S.N., ordered to the *Maryland*.

P. A. Surgeon J. J. Snyder, U.S.N., ordered from the *Kearsarge* to the *Tacoma*.

P. A. Surgeon J. Stepp, U.S.N., ordered from the Newport Training Station to the *Topeka*.

P. A. Surgeon W. G. Stimpson, P.H.&M.H.S., ordered from San Francisco to Port Townsend.

Surgeon J. B. Stoner, P.H.&M.H.S., ordered from Norfolk to Evansville.

Assistant Surgeon R. E. Stoops, U.S.N., ordered from the Naval Medical School to the *Pensacola* and the San Francisco Naval Training Station.

Captain Paul F. Straub, U.S.A., ordered from Fort Leavenworth to report to the Secretary of War in person.

Assistant Surgeon H. F. Strine, U.S.N., ordered from the *Helena* to the *Barry*.

Assistant Surgeon C. E. Strite, U.S.N., ordered from the Naval Medical School to the Norfolk Naval Hospital.

P. A. Surgeon Allen Stuart, U.S.N., commissioned P. A. Surgeon with the rank of Lieutenant.

Captain Henry D. Thomason, U.S.A., advanced to rank of Captain.

Assistant Surgeon E. M. Tolfree, U.S.N., ordered from the *Hancock* to examination for promotion at Washington and subsequent waiting orders.

Lieutenant Wilfrid Turnbull, U.S.A., honorably discharged from the service of the United States with one year's pay.

Lieutenant F. M. C. Usher, U.S.A., ordered from Fort Yellowstone to Fort Brady.

Assistant Surgeon E. A. Vickery, U.S.N., ordered from the Naval Medical School to the Portsmouth Navy Yard and the *Southery*.

Lieutenant Frank W. Weed, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Major George M. Wells, U.S.A., under treatment at the Army and Navy General Hospital at Hot Springs, retired on account of disability.

Medical Director Howard Wells, U.S.N., ordered from the Newport Naval Hospital to the Chelsea Naval Hospital.

Assistant Surgeon L. H. Wheeler, U.S.N., ordered from the Naval Medical School to the Narragansett Bay Naval Hospital.

Lieutenant William A. Wickline, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Assistant Surgeon C. L. Wicks, U.S.N., ordered from Naval Medical School to the U.S.R.S. *Lancaster*.

P. A. Surgeon C. W. Wille, P.H.&M.H.S., ordered from Baltimore, Md., to the Gulf Quarantine Station.

Surgeon L. L. Williams, P.H.&M.H.S., ordered from Washington to Baltimore.

Captain James S. Wilson, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

P. A. Surgeon R. L. Wilson, P.H.&M.H.S., relieved from duty at the Hygienic Laboratory and ordered to Vera Cruz, Mexico.

A. A. Surgeon C. K. Winn, U.S.N., ordered from the Norfolk Naval Hospital to the *Cæsar*.

Lieutenant Robert N. Winn, U.S.A., granted three months leave.

Dr. Roman Romanovitsch de Wredin, who represented the Russian Army at the 1903 meeting of the Association of Military Surgeons of the United States, is Chief Surgeon of the Russian forces in Manchuria.

P. A. Surgeon G. B. Young, P.H.&M.H.S., ordered from Louisville to Chicago, and detailed to represent the Service at the meeting of the Council on Medical Education of the American Medical Association at Chicago.

Assistant Surgeon W. J. Zalesky, U.S.N., ordered from the Naval Medical School to the Naval Academy.

Lieutenant Stanley G. Zinke, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

ANEMIA IN PORTO RICO.—The Assembly of Porto Pico has made an appropriation of \$15,000.00 to be devoted to the prosecution of the study of Anemia in that Island, and the tour of duty of Captain Bailey K. Ashford, U.S.A. in Porto Rico has been extended in order to enable him to preside over the Commission engaged in this work.

COMPANY B, HOSPITAL CORPS, U.S. ARMY, is represented in the *Army and Navy Register* of March 31st last by two particularly handsome engravings.

ARMY MEDICAL SCHOOL COMMENCEMENT.—The seventh annual commencement exercises of the Army Medical School were held on the afternoon of April 11th at the Army Medical Museum in Washington. Colone Charles L. Heizmann, President of the Faculty presided, and the diplomas were presented by Surgeon General Robert M. O'Reilly. The session has been an exceptionally successful one and this was the first occasion when National Guard officers and Contract Surgeons formed part of the student body. The graduates, in addition to Contract Surgeon Duncan and Lieutenants William A. Wickline and Leartus J. Owen the honor graduates,

were Lieutenants Howard H. Baily, Henry L. Brown, Robert M. Culler, William R. Davis, Paul L. Freeman, Harry G. Humphreys and Stanley G. Zinke of the Army; Major George D. Dulin of Nebraska, Captain Charles D. Colby of Michigan, Captain Clarence T. Cole of Nebraska, Lieutenant Richardson of Ohio; Contract Surgeons Gitner and Bruns of the Army.

NAVAL MEDICAL SCHOOL COMMENCEMENT.—The graduating exercises of the Naval Medical School were held on March 25th in the Hall of the National Museum at Washington. Medical Director R. A. Marmion, President of the Faculty presided, and President Roosevelt and Prof. William H. Welch of Johns Hopkins made addresses, while the diplomas were presented by the President of the United States. The names of the graduates appear in the list of assignments to stations.

NORTH CAROLINA NATIONAL GUARD.—The following appointments have been made in the Medical Staff of the North Carolina National Guard. Colonel B. R. Hunter, Kings Mountain, Surgeon General; Lieutenant Colonel Charles S. Jordan, Asheville, Deputy Surgeon General; Major A. L. Pendleton, Elizabeth City, Surgeon; Major E. H. Brooks, Reidsville, Surgeon; Major T. H. Holmes, Clinton, Surgeon; Major E. B. Glenn, Asheville, Surgeon; Captain R. A. Winston, Franklinton, Assistant Surgeon; Captain Park M. King, Charlotte, Assistant Surgeon; Captain W. T. Parrott, Kingston, Assistant Surgeon; Lieutenant E. C. Boyle, Mt. Holly, Assistant Surgeon; Lieutenant E. J. Witherspoon, Charlotte, Assistant Surgeon.

PHILIPPINE ISLANDS MEDICAL ASSOCIATION.—This association, including among its membership a large proportion of the medical officers of the Army stationed in the Philippines, held its Second Annual Meeting in Manila on the 1st, 2d, 3d and 4th of March. The program contained many valuable and interesting papers, among which may be mentioned the "Control of Tuberculosis" by Colonel D. M. Appel, U.S.A., the "Address in State Medicine" by Major E. C. Carter, U.S.A., the "Military Medical Service in the Philippine Islands" by Major Charles Richard, U.S.A., "Evolution of the Medical Laboratory Work in the Philippines" and the "Metropolitan Police Medical Service" by Drs. R. P. Strong and A. T. Short, late of the United States Army. Major John R. McDill, formerly Surgeon of U.S. Volunteers and now the leading surgeon in civilian practice of Manila, presided.

NATIONAL FIRST AID SOCIETIES. Two national first aid associations have been formed within the past month. The first is the White Cross Society, organized in Chicago by Colonel Nicholas Senn, Lieutenant Colonel Charles Adams, and Captain Samuel Cecil Stanton. The second was incorporated in the District of Columbia under the title of the National First Aid Association of America, and has among its charter members Miss Clara Barton, General Nelson A. Miles and Lieutenant Harry H. Hartung. This shows an increasing and active interest in the subject of First Aid, which it is hoped will largely extend a knowledge of the subject throughout the country.

Current Literature.

THE NEW ARMY HOSPITAL CORPS DRILL REGULATIONS.*

THE long awaited revision of the Drill Regulations by Majors Mason, Winter and Reynolds is now being issued to the Service. At first sight one is impressed by the change in shape of the book to a larger 12mo instead of the small 24mo, in which it heretofore appeared. The paper is very thin, which, combined with the shape makes the book most convenient for carrying in the pocket. The points in which these Regulations differ from the preceding issue were given in full by Major Reynolds in the August, 1904, number of the JOURNAL, so that it will be unnecessary to describe them here in detail. An interesting feature of the work is the great increase in the number of illustrations, which is very much to the advantage of the work and of the Service.

THE EFFECTS OF TROPICAL LIGHT ON WHITE MEN.†

THE study of the topography of the blonde and brunette is a most interesting although hitherto somewhat neglected subject. Major Woodruff with his customary thoroughness has worked out the effects of tropical light upon white men in the handsome monograph under consideration, and presents his studies in a most attractive and interesting form. The work is an invaluable sociological contribution and a most useful medi-

**Drill Regulations and Outlines of First Aid for the Hospital Corps, U. S. Army. Revised 1904.* 12mo.: pp. 145, with 83 illustrations. Washington, Government Printing Office, 1904.

†*The Effects of Tropical Light on White Men.* By Major CHARLES E. WOODRUFF, M.D., U.S.A. 8vo.: pp. 358. New York, Rebman Co., 1905.

cal research. The book, after discussing the physiology, etiology and results of tropical residence, presents a series of recommendations which may well be accepted by officers and their families, compelled by the vicissitudes of the service, to reside for a time in our tropical possessions.

COLOR TESTS FOR BLOOD, URINE, FECES AND MOISTURE.*

THIS will prove to be a valuable assistant in the matter of the determination of color, which is difficult for the average physician to properly determine. The arrangement and system of determination are novel and effective.

THE SURGICAL TREATMENT OF BRIGHT'S DISEASE.†

THIS is a compilation of articles upon the subject published in the various journals by its distinguished author whose work in renal surgery is so well known, followed by the full history of seventy-two cases operated upon by him for chronic Bright's disease up to the end of the year 1903. The book is authoritative and forms a material contribution to surgery.

LEGAL MEDICINE.‡

THE subject of legal medicine is one of importance which is steadily increasing with the growth of scientific knowledge. The old adage that there were three grades of liars,—“liars, damned liars and medical experts,” is rapidly growing to be untrue under the spur of scientific knowledge. The work of Dr. Draper embodies the very latest information in legal medicine and will be found most useful in the continued effort to clearly define medical expert testimony.

***Blood, Urine, Feces and Moisture. A Book of Tests.** By HENRY EMERSON WETHERILL, M.D. 24mo; pp. 32. Philadelphia, George P. Pilling & Son, 1904.

†**The Surgical Treatment of Bright's Disease.** By GEORGE H. EDEBOHLS, M.D., LL.D. 8vo; pp. 327. New York, Frank J. Lisiecki, 1904.

‡**A Textbook of Legal Medicine.** By FRANK WINTHROP DRAPER, M.D. 8vo; pp. 573, with about forty illustrations. Philadelphia, New York, London, W. B. Saunders & Co., 1905.

DIET IN HEALTH AND DISEASE.*

THIS comprehensive work is laid out upon a broad and practical plan and covers, (1) the chemistry and physiology of digestion, (2) the classes of foods, including beverages, and stimulants, and various factors bearing particularly upon diet, with full consideration of diet in special conditions, including infancy, old age and the puerperium, with a minute discussion of the feeding suitable for special diseases. It discusses the Army and Navy rations, the dietaries of public institutions, presents numerous recipes, and combines to form an invaluable work the need of which has long been felt by the profession.

A HAND-BOOK OF SURGERY.†

THE author has given us a little work of great merit. It is a brief outline of the principles and practice of surgery, covering the entire field of surgery with in addition articles on Life Insurance, Rape, Microscopy and on many other subjects of importance to the surgeon. As a ready reference book for hurried use it is simply invaluable and we believe as such it will prove of great value to the busy physician.—A. R. ALLEN.

ESSENTIALS OF THE PRACTICE OF MEDICINE.‡

THE progress of medical science has rendered a new work upon Practice an essential among question compends for some years, and students will no doubt welcome with pleasure the appearance of this up to date outline of the subject which takes the place in the series occupied hitherto by the work of Dr. Henry Morris.

**Diet in Health and Disease.* By JULIUS FRIEDENWALD, M.D. and JOHN RUHRAH, M.D. 8vo; pp. 689. Philadelphia, New York and London, W.B. Saunders & Co., 1904.

†*A Hand-Book of Surgery.* For Students and Practitioners. By FREDERICK R. GRIFFITH, M.D. 12mo; 579 pages, 417 illustrations. Philadelphia, New York, London, W. B. Saunders & Co., 1904.

‡*Essentials of the Practice of Medicine.* Prepared especially for students of medicine. By WILLIAM R. WILLIAMS, M.D. 12mo; pp. 461. Philadelphia and London, W. B. Saunders & Co., 1905.

Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS
EXPRESSED IN THEIR CONTRIBUTIONS.

THE TREATMENT OF ABDOMINAL INJURIES WITH SPECIAL REFERENCE TO GUNSHOT WOUNDS OF THE LIVER.

BY COLONEL JOHN E. SUMMERS, JR.

OMAHA, NEBRASKA.

FORMERLY SURGEON GENERAL OF NEBRASKA; SOMETIME ACTING
ASSISTANT SURGEON IN THE UNITED STATES ARMY.

THE practice of military surgeons in garrison or camp should be the same as that of surgeons in civil life regarding the treatment of abdominal traumatism. When it comes to the treatment of such injuries during or after battle, I take it that the surgeon on the spot capable of doing creditable modern surgery is the one to decide in individual cases whether or no the circumstances admit of doing accurate reparative work. There can be no argument beyond this. Reports from modern wars, and more especially the one now raging in Manchuria, prove that the military rifle of to-day, firing a hard small bullet at a very high velocity does the least possible damage to intra-abdominal organs and therefore lessens the dangers of such traumatisms, viz,—those from hemorrhage and septic peritonitis. General William H. Forwood, U. S. Army, Retired, my preceptor, says (Dennis' System of Surgery), 'Laparotomy for gunshot wounds of the abdominal viscera, unlike many other operations in military surgery will always be greatly restricted in its applications and usefulness by the very exacting conditions necessary to success. Wounds of the viscera do not admit of delay. There is no way to prevent sepsis as in external wounds. The time that may

elapse before an operation must be done is limited from three to five hours, after which the chances of success diminish very rapidly. The operation must be done at the hospital, in a warm quiet room protected from wind and dust, with good lights, competent assistants, plenty of time and the advantage of the strictest antiseptic precautions. Very exceptional qualifications are demanded of the surgeon. None but those having skill and special training in this line and who have had considerable experience at least on the cadaver, and living animals should dare undertake it. The mortality in laparotomy for gunshot and stab wounds of the intestines done by inexperienced operators will be much greater than that under the expectant plan of treatment. Except in siege operations, the hospitals will very rarely be established in time to offer the benefit of this operation to those wounded in the early part of the engagement. Very few of the severely wounded will be able to reach the hospital under ordinary circumstances within five hours after the receipt of their injuries. Men with penetrating wounds of the abdomen suffer from shock and hemorrhage, and often have to remain for a time on the field, and they usually have to be carried long distances on litters. Such cases are brought to the hospital in the evening or during the night when the difficulty of operation is increased by want of proper light, or more frequently not until the following day when it is too late. An operator with requisite skill and experience will rarely be available, and when there are many wounded, the services of two or three of the best surgeons for an hour or two of precious time can seldom be given the doubtful benefit of one among a number of men urgently needing assistance. Battles result in defeat as well as in victory on one side or the other and among the wounded prisoners the benefit of laparotomy will hardly be realized, although some ante-mortem abdominal sections may be made by well meaning surgeons with more zeal than discretion. On the whole the outlook for future operative interference in cases of penetrating wounds of the viscera on the battle field is not very promising. But still there will be exceptional cases and especially favorable circumstances where this procedure may become practicable."

General Forwood's opinion is all the more sound to-day because the experiences of late go to prove that many recoveries have followed perforating wounds of the abdomen made by the modern military rifle bullet, when the injured are treated upon the expectant plan. These cases would almost certainly have died had they been operated upon under the difficulties of aseptic surgical work in the field. Pistol shot wounds and stab wounds of military and civil practice vary only in degree, those of the service weapons being more destructive than those commonly met with in civil life.

In garrison life the results of all surgical work in the treatment of traumatisms excel those obtained by the civil surgeon. The discipline existing and the sound physical make-up of the enlisted man is in striking contrast with the often unnecessary delays and deteriorated constitutions of the many injured among civilians. There is only one way to make a diagnosis as to the exact extent and nature of an intra-abdominal injury from either contusion or penetration and that is palpation and vision through an abdominal incision.

Of course there are certain well defined symptoms strongly pointing towards the injury of an intra-abdominal viscus following a contusion of the abdomen or a supposedly penetrating or perforating wound of the abdominal walls. But it *is* true, that the golden period for successful surgical treatment may be lost in waiting for classical symptoms. My own experience has so forcibly impressed me with this fact that I now never wait an unnecessary hour before opening the abdomen. I want to *know*. It would be presumptuous to waste your time in asking you to listen to repetitions of the well known methods of diagnosis of intra-abdominal injuries, they are worth so much or so little as they apply to an individual case. Neither would it be profitable to detail the usually considered best methods of repair, but I *am* going to ask your indulgence in listening to several of my experiences and the deductions drawn from them. Before doing this let me briefly tabulate my individual cases and I wish to emphasize the fact that the diagnosis was confirmed in each with but few exceptions either by operation or post mortem examination. It composes in all thirty-five cases, divided as follows—

CONTUSED WOUNDS.

Rupture of kidney—7; operations 4; died 1 (not operated).

Rupture of liver—1.

Rupture of bladder—1; operation, died.

Rupture of intestines—3; operation 1; died 3.

Acute intestinal obstruction—2; operations 2; recovery 2.

Aneurism of abdominal aorta—1; died 1.

GUNSHOT WOUNDS.

Stomach, large and small intestines—1; operation 1, died.

Stomach and liver—1; operation, died.

Sigmoid flexure—1; operation, died.

Small intestines—2; operations 2; died 2, (operations done by colleagues with my advice and assistance).

Peritoneum, intestines escaping—1; operation, recovery.

Heart, liver, colon and jejunum—1; died.

Lung, liver, small bowel, postperitoneal at ligament of Treitz—1; died.

Posterior and anterior walls of second portion of duodenum, gall bladder—1; operation; died.

Lung, diaphragm, liver and spleen—1; operation; recovery.

Liver—2; operations 2; died 1; recovery 1.

Liver and kidney—2; operations 2; died 2.

Kidney—1; operation; recovery.

SHOT GUN WOUNDS.

Large and small intestines—1; died.

Kidney—1; recovered.

STAB WOUNDS.

Colon and mesentery—1; operation; recovery.

Liver and large cut in right iliac region with protrusion of caecum and ileum and wound of the mesentery; operation, recovery.

Stomach, anterior wall; died,

In studying these tables one is immediately struck with the relatively few simple cases as compared with the complicated ones. Again the high mortality is apparent. Most of the fatal cases were operated prior to ten years ago. Although it is always to be expected that death may follow simple perforating injuries of the hollow viscera, how much more likely is a fatal termination to be awaited when the injuries are complicated by the involvement of other viscera. Hemorrhage and infection are the dangers in the order named. Shock itself rarely kills, when it does the injury is usually so extensive as to suppress all function. Only one of my patients died in less than twenty-four hours. This

one, a woman, died more from hemorrhage than shock. A 38-caliber bullet had badly lacerated the stomach and bowels and when the abdomen was opened three hours after the shooting it was found that so much blood had already been lost that the termination depended more upon the difficulties of the control of the bleeding than the repair of the wounded viscera.

Of the seven ruptures of the kidney, one died, this latter was not operated. One nephrectomy was done. In one of two cases drained by retroperitoneal incisions, a preliminary abdominal section was made, the symptoms indicating peritoneal infection. In one case both kidneys were ruptured. Rupture of the kidney is a very common accident and is usually recognized by shock, localized pain and the passage of bloody urine. A localized tumor will not form if the rupture occurs directly through the peritoneal investment into the peritoneal cavity. If the rupture occurs so that the blood accumulates in the loose cellular tissue surrounding the kidney, a tumor forms rapidly, presenting first in the posterior ileo-costal space, enlarging downwards, forwards and inwards. Urine may also extravasate in the same directions and even towards the surface. When a kidney is so lacerated that the hemorrhage accumulates in its pelvis the tumor is especially small and forms slowly, perhaps requiring several days before it can be detected. In such cases either the amount of blood in the urine is rather excessive or because of a blocking of the ureter by clots, little or no blood is found in the urine. When the ureter is blocked or injured so as to prevent the escape of bloody urine into the bladder, the tumor may enlarge quite rapidly, being similar in its action to an acute hydronephrosis. The writer has found the Harris instrument and Kelly cystoscope and ureteral catheters of great value in determining the source of a hematuria, as well as the functional integrity of both kidneys. The other cases were of no special interest, except the fatal one; in this upon post mortem examination, the right kidney was found torn from its moorings, anchored only by its ureter.

The treatment of rupture of the kidney should be operation if the symptoms indicate excessive laceration, intra-abdominal hemorrhage or infection. Usually every condition can be met

through a retroperitoneal incision. If indicated there should be no hesitation in opening the abdomen through a lateral anterior incision.

In the cases of ruptured bladder and the three cases of rupture of the intestine, procrastination robbed the victims of a chance of recovery. I refused to operate upon two of the latter.

The traumatic aneurism of the abdominal aorta is the most unique case of my experience. A boy ten years old, ran against a taut heavy wire stretched between two posts, the impact was between the umbilicus and the ensiform cartilage. The little fellow although much shocked and vomiting managed to walk home, some little distance. Reaction was slow. When I saw him fifty-five hours after the injury, the pulse was 150, temperature (rectal) 99°F. Some abdominal distention with muscular rigidity most marked upon the right side. Diagnosis, rupture of the intestine, and at that time inoperable. Eight hours later the pulse had fallen to 120, so I concluded that the rupture was incomplete and that ice locally and opium internally were indicated. I did not see the case again but four days later the child died, developing towards the last, cold blue lower extremities and a very high temperature. The post mortem examination disclosed intestines intact but a traumatic aneurism about the middle of the abdominal aorta, adult fist sized.

The gunshot stomach wounds were all complicated by other visceral injuries. One involving both curvatures of the stomach and the liver, the direction of the injury being from below upwards, lived two weeks dying from abscesses of the liver. It is almost impossible for a gunshot wound of either the stomach or duodenum, which perforates both walls, to be limited to those organs; therefore under such circumstances, in addition to the repair of any intraperitoneal organs involved, proper incisions must be made to provide for the retroperitoneal drainage.

The case involving the heart (apex), liver and bowels, should have been operated, the man lived twenty-six hours, dying from peritonitis and a damaged heart. I am now confident that the injuries could have been repaired with at least a prevention of the peritonitis. I got ready to operate and then backed out.

The very unfavorable case of wounds of the lung, diaphragm, liver and spleen was operated successfully, proving that it is the duty of the surgeon to operate in desperate cases, but he must act early, otherwise operations tend to bring surgery into disrepute. I am of the opinion that formerly the bad prognosis in gunshot wounds of the spleen was justified, because of the necessary or unnecessary delays. Nowadays except during active field operations, the prognosis ought to be favorable when *early* operation is done. The mattress suture and the tampon will control bleeding; the removal of the organ is only indicated by very extensive laceration—the experimentally successful combined crushing and suturing method of Senn strikes me favorably.

When the posterior wall of the fixed portion of the duodenum is ruptured, cut or perforated by a bullet, as in one of my cases, there is only one rational method of repair. The injured gut wall should be exposed by a reversal of the foetal rotation of the intestine from left to right. The peritoneum is divided in front of the kidney parallel to and outside of the descending portion of the duodenum and the fingers introduced behind the duodenum which is then readily freed from the loose cellular tissue and rotated from right to left—the cellular tissue is the fused right meso-duodenum and the primitive parietal peritoneum. By this manipulation the posterior wall of the descending portion of the duodenum can be easily exposed and rotated into the abdominal incision. It may be better also to occlude the pylorus and do a gastro-enterostomy.

The cases of stab wound do not offer anything of especial interest except the one involving the liver—the one of the stomach was not seen until the third day, too late for operation. The post mortem disclosed a clean cut, one-fourth inch through the anterior stomach wall—an easy and safe case for early operation. Although many of my cases are extremely interesting I will desist from further comment. Let me briefly discuss the management of wounds of the liver. In all I have treated nine people suffering with either wounds of the liver alone or the same complicated by wounds of other organs. Because of its size, position, fixation and tissue structure, the liver is more frequently contused than

any other intra-abdominal organ, and next to the intestines the most frequently injured by penetrating abdominal wounds. There is practically only one danger from a wound of the liver and that is hemorrhage. The fear of peritonitis and cholæmia are only secondary. If hemorrhage be controlled by art or nature, any accumulation of bile can be taken care of by the peritoneum or surgically removed. Normal bile is sterile. As Schlatter says (*Beiträge zur Klinischen Chirurgie*, Band xv, Heft ii), the danger of the escape of bile into the peritoneum is not from bacteria, but from toxemia due to the absorption of bile products. The statistical tables of Mayer based upon 267 cases gives a general mortality of 59 per cent. By rupture—86.6 per cent; gunshot wounds—34.4 per cent; stabs and cuts—56.5 per cent. Edler out of his 546 collected cases gives a general mortality of 66.8 per cent: ruptures—85.7 per cent; gunshot wounds—55 per cent; stabs and cuts—64.6 per cent.

A study of Edler's tables shows that out of 162 cases of rupture of the liver (of this number the history as to time of death being in forty-six uncertain), twelve died immediately; twenty-five within the first few hours; thirty-two within twenty-four hours. Out of forty-eight fatal gunshot wounds (excluding six histories inaccurate) seventeen died within twenty-four hours. Out of forty fatal stab and incised wounds (seven histories inaccurate) fourteen died within twenty-four hours. Excepting the complicated cases, these early deaths can only be attributed to hemorrhage. Abscess of the liver is a late complication following wounds, as was seen in my case of death two weeks after a wound involving both curvatures of the stomach and liver, the stomach wounds healed yet the patient, a boy, died from multiple abscess of the liver. Several theories are advanced as to the cause of this infection, the most plausible being that the portal blood contains much germ laden chyme from the stomach and intestines. In health the function of the liver is to take care of this chyme; in lessened resistance resulting from trauma, infection may take place—a *locus minoris resistentiae* having developed.

The indications for treating all wounds of the liver must be the immediate control of hemorrhage, by suture or tampon and

the repair of any injuries to the gall tracts. Whenever this is practicable it prevents early death from hemorrhage and later death from bile absorption or liver abscesses. I early became impressed with the fact that operation which might not admit of suture of the wounds would do more harm than good.

In two cases I operated some hours after the shooting, patients in fair condition. In each, although there was found much blood in the abdomen, the hemorrhage seemed to have almost ceased. The manipulation of the removal of the blood, attempts at suturing and use of the tampon brought on a renewal of the active bleeding—I have always thought that these patients might have recovered had they *not* been operated. So I would say that in the absence of the expectation of complications and in the presence of a good pulse which holds its own, it may be unwise to operate if the wound in the liver seemed probably difficult to suture. Under all other circumstances I would operate immediately if practicable. By using a sand bag or a specially made hard round pillow—the inflatable kidney bag of Edebohls is too wobbly—a free incision through the right rectus will admit of such an exposure of both surfaces of the liver so as to do most any kind of reparative work. The needle used should be well curved and round and the suturing material large, plain, sterile catgut introduced deep either as an interrupted stitch, or as a mattress suture. These will not tear the liver if introduced well back from the wound edges and tied without tension.

About thirty of my cases of intra-abdominal injuries were treated in the Clarkson Hospital, Omaha, where there is an active emergency service and of which I have had control for many years.

SLEEPING SICKNESS IN AFRICA.—In 1904, Professor Lortet declares, the sleeping sickness, caused by the trypanosoma inoculated by the tsetse fly, killed more than 400,000 natives between Lake Nyanza and the Congo. If this parasite continues its ravages, the center of Africa will be entirely depopulated in a few years, as is feared by several English medical explorers.—SAMUEL M. DELOFFRE.

HERNIA IN THE ITALIAN ARMY.

By COLONEL PIETRO IMBRIACO,
MEDICAL DIRECTOR OF THE EIGHTH ARMY CORPS OF THE
ROYAL ITALIAN ARMY.

THE great importance that hernia has ever had in military practice, has induced me to make this short communication, in order to make known the statistics with regard to the radical operation for hernia in the Italian military hospitals.

The radical cure of visceral hernia enters largely not only into civil surgical practice, but also into military. Asepsis and antisepsis have by their brilliant success eliminated the medico-legal question, relating to the compatibility of this affection with the military service.

The first operations in the Italian Army for the radical cure of abdominal hernia were done in 1892. In that year, the cases operated upon were 14; following that time, they increased yearly until they reached the number of 454 at the end of 1897, with only two deaths,—one for shock after the operation and the other for a complication of erisypelas.

From 1898 to 1903 the radical operations increased on a larger scale, as appears by the following table:

YEAR.	KIND OF HERNIA.			TOTAL.	CURED.	DEATHS.
	Inguinal.	Umbilical	Crural.			
1898	312	2	6	320	320	
1899	392	2	6	400	400	
1900	435	3	9	447	445	2
1901	435	3	10	448	447	1
1902	624	3	9	636	634	2
1903	576	6	11	593	592	1
Total.	2774	19	51	2844	2838	6

Of the 2774 inguinal hernias, 111 were bilaterals, 32 recurrences, 11 strangulations.

Two deaths occurred in consequence of strangulated hernia and 4 directly from the operation for radical cure, which with the two of the preceding six years, in over 3298 operated upon, represent only eighteen per cent. This proportion, certainly very small, together with similar results in other hernias, shows that in the young soldiers the conditions favorable to the good issue of the operation are greater than in the civil population, which includes people of all ages, of all the social classes, and, what is yet more important, of persons affected with hernia of all kinds and degrees. If, in fact, we consult the statistics of Port, the most numerous at the present, we notice that in over 23,519 radical operations, we had ninety per cent. of mortality.

As to the recurrences, it is not easy to determine exactly the number, because the soldiers operated upon, being sent on furlough, nearly all escape later investigations.

In any case, it is without doubt that the recurrences do not exceed the proportion of two or three per cent. The number of 32 recurrences in 2844 cases operated upon in the Italian military hospitals from 1898 to 1903, would give the rate of 1.12 per cent., but this is not precise, because many new operations were performed for recurrence, and because a good many recurrences take place in the second year after the operation or later, when the greater part of these soldiers are no more in service.

It is also useful to mention that the 3298 operated upon (including the 454 from 1892 to 1897) correspond to the number of 216,000 soldiers and also that the number of soldiers already in service discharged for hernia has been gradually lessening from 710 in 1895 to 389 in 1900. Notwithstanding, the quantity of young men that the Italian army is annually losing, who are not admitted, or who are discharged for an illness, from which they could be easily freed, is quite considerable. If to the 450 discharged yearly, we would add the exempted recruits, who numbered 4930 from 1898 to 1903, one will see that the Italian Army loses yearly more than 5000 soldiers from hernia. And this inconvenience is nearly the same in the other armies, because the practice upon this point, substantially agrees, it being everywhere admitted that well developed, and more or less large

visceral hernia is not compatible with the active military service.

The Italian Surgeons generally use the Bassini method more or less modified, and only exceptionally they use that of Kocher or others. The surgeon of the army naturally follows the custom of other surgeons and in over 3399 operations for the radical cure of inguinal hernia, (including 111 cases of bilateral hernia) only in a very few cases did they resort to other methods than that of Bassini.

It would be useless to enter here into details of the operation. It is enough to say that the process of the eminent Italian surgeon,—who, as you know, had in view to reconstruct the inguinal canal as it is physiologically in oblique direction, below and in front,—for simplicity of technic, for ease of application to all kinds of inguinal hernia and for the splendid results obtained in comparison with other processes, has been selected not only in Italy but in many other countries. Coley reports 917 operations with this process and only ten recurrences.

Among the many proposed modifications of the process of Bassini one, I think to be very rational and deserving of mention, consists in not putting the aponeurosis transversalis of Cooper in the tissues to be sutured in the posterior part of the crural arch when as happens in recent hernias, it is not very weak or taken out from its natural position; in these cases it is sufficient to suture to the margin called the double muscular stratum formed by the small oblique and the transversalis muscles. Major-Surgeon Baldanza, who since 1894 has adopted this modification, reports 215 cases operated by him and other military surgeons in this manner with only four recurrences. We have no doubt that with this modification the operation is quicker and more simple and in case of an eventual infection of the wound in the cutis, the process of suppuration can not so easily affect the interior parts.

I think it also useful to mention that for many years, in the Italian military hospitals, in place of general anesthesia, we have used the local application of cocaine according to the method of Rechis-Ceci, which consists in having a prior hypodermic injection of cloridhrate of morphine and fifteen minutes thereafter in-

serting in the same place many deep injections of cocaine solution.

This process is not new in medical military practice. I remember that in the Congress at Moscow of 1897, Corvin and Vicol referred to about 200 cases of inguinal hernia operated upon in the military hospital of Jassy (Roumania) of which the anesthesia with cocaine was used in 188. In the military hospital of Florence from 1899 to 1903, there were performed 79 radical operations for hernia, of which three were crural, under cocaine anesthesia without any trouble.

It is unnecessary to mention the advantages, especially in military surgery of this process in place of the chloformation in cases of recent hernia, perfectly free, whose sack can be easily isolated from the surrounding tissues.

The rachi-cocainization of Bier-Tuffier, has also been used. The military surgeon Caccia, who has employed it many times in the military hospital of Alexandria, reports fourteen cases of inguinal hernia, of which five were bilateral, well treated in this way. But this method has not generally spread in civil practice and therefore also not much used in military work, at least in Italy.

With this, I come right to the military medico-legal question. Certainly, in view of the new complete immunity of the radical operation for visceral hernia, the thousands and thousands of exemptions from the military service for this disease ought to disappear as also the discharges for disability, which although not so numerous, represent a large proportion of yearly losses in armies.

In the first place, civil society can provide by law, for operation upon people affected by hernia, in order to be freed from a dangerous disease which limits the power of work and which is considered a humiliating imperfection. Military law can also exercise a large influence, it being well known that many young men do not ask to be operated upon, in order to avoid the military service.

What could we do to avoid the loss by discharging the disabled ones?

The most efficient measure would be to oblige all the soldiers affected with hernia to be subjected to the radical operation. This measure would also have in its favor the merit of giving to the army and to all human society, men in good state and health, and able to work; the deaths caused by the operation are very few and there are reasons to hope that same will disappear. But can society oblige one to have an operation performed, even if this operation is not dangerous? No, and this is the great difficulty for the solution of the problem.

The question was presented by Demosthen to the International Congress of Rome in 1894 and afterwards was discussed by Delorme, Chauvel, Wissemans, Link, Corvin and Vicoli and lately by our General Dr. Randone of the Italian army, but no proposition in my opinion, would eliminate or improve the inconvenience.

Dr. Randone thinks that we could induce the soldiers affected by hernia, to subject themselves more frequently to the radical cure, applying in all cases of hernia the provisions relating to pensions in case of failure of operation or of worse conditions. I have not great faith in this measure which throws too much responsibility upon the doctor and then it would also be essential to do the same for other important but not strictly necessary operations.

I certainly hope it will not be difficult to have a progressive diminution of discharges for this disease, if the soldiers affected will think that it is better in their interest to suffer the operation instead of having the sword of Damocles over their heads.

Notwithstanding, a reform in the law to render easier the acceptance of the operation would be highly profitable. I think that the best way would be to use less rigor in exemption from military service of recruits affected by hernia and on the contrary more readiness in retaining soldiers in service. If everywhere would be adopted the principle of some armies to consider discharge from the military service only in young recruits affected with double hernia or a big hernia not easy to reduce and to keep so; and if soldiers with hernia would be without exception judged in the same way as the graduates of the Italian army, I think

that on the one and losing the hope of obtaining a discharged from the service and on the other the hope of not being discharged on the part of those who desire to continue in the service, would largely increase the number of the soldiers, who would of themselves ask for the radical operation. In Italy the greater proportion of the radical cures occurs in case of soldiers who wish to remain in the service and could not continue in it, for this illness.

Allow me, before finishing, to say a few words regarding another question also involving military legal medicine.

When is visceral hernia to be regarded as depending upon the service?

Rigorously only the hernia, due to strain, would be retained as incurred in service; and in some armies this idea prevails. But it is unnecessary to demonstrate that the formation of a true traumatic hernia from strain, that is, developing only under the influence of elevated abdominal pressure in a violent and quick manner, without predisposition to hernia is so rare that the possibility is not admitted by the majority of anatomists and surgeons.

But is all this rigor just? Is it in conformity with the present ideas of the pathogenesis of visceral hernia? I think not.

If a soldier in service falling from a horse reports a light contusion on the knee and after this traumatism there develops in this articulation, a tubercular "osteo-arthritis" for which he must subject himself to the resection of the knee or the amputation of the leg, who could doubt that the illness of this unfortunate soldier, was incurred in the line of duty notwithstanding the predisposition to tuberculosis and the fact that the trauma could have been only the indirect cause of the illness? Then why must another opinion be adopted for hernia?

Kocher has condensed in the following formula, the essential conditions why hernia can constitute a reason for indemnification of damages to the working men and laborers: "Recent hernia which follows immediately an unfortunate at work or that is derived from a most extraordinary strain during the work, and accompanied in both cases by a severe pain." In my opinion the

same criterion should guide the military surgeon in regard to the cause of hernia incurred in the service.

In conclusion, I believe that:

1. It is desirable to provide additional medico-legal provisions to favor the wider extension of the operation for radical cure of hernia in military service.

2. These provisions should be directed toward rendering more difficult and infrequent the exemption of recruits from service on account of hernia.

3. In determining the question of whether an acquired hernia was incurred in the line of duty or not, the same criterion should be applied as with civilian surgeons in case of a workman.

SPINAL ANESTHESIA WITH TROPACOCAINE AND ITS EMPLOYMENT IN SURGERY IN WAR.

THE following conclusions were reached by Dr. F. Caccia (*Archives de médecine et de pharmacie militaires*):

- (1) This procedure can be used without danger, even with 0.06 centigram. of tropacocaine hydrochlorate, if the necessary precautions are taken. Patients who have taken both general anesthesia and spinal anesthesia always prefer the latter when another operation is necessary.
- (2) The anesthesia extends as high as the umbilicus, sometimes up to the axilla: it is complete around the rectum and anus.
- (3) The technique is very simple, but necessitates some experience.
- (4) The solution of tropacocaine is more efficacious when its temperature is raised to 40 or 45 degrees.
- (5) Tropacocaine retains its properties for about a month, even though it has been boiled six or seven times. After a month it loses its analgesic properties, and becomes very poisonous.
- (6) Spinal anesthesia is a precious innovation in time of war; it admits of an economy of personnel, time and money. It may be used without danger even in weak cases or when there is intense shock.

—SAMUEL M. DELOFFRE.

PULMONARY TUBERCULOSIS: ITS DIAGNOSIS AND COURSE UNDER FAVORABLE CLIMATIC CONDITIONS.

By EDWARD D. SINKS, M. D.,

EL PASO, TEXAS.

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DURING my service at the Army Sanatorium at Fort Bayard, I observed so many patients among those who came to this plateau in search of health, whose trouble had been diagnosed as chronic bronchitis, catarrh or asthma, and in consequence their pulmonary lesions had so far advanced that recovery was either impossible or very difficult, that I have come to the conclusion, that not enough care is exercised in the early diagnosis.

A proper diagnosis at the earliest stage of the disease is very necessary, in order that the patient may at that time adopt such a course of living and take such precautions as are necessary for a recovery. I deem it my duty, therefore, to give to the profession such facts as I have obtained from my experience at Fort Bayard, in the diagnosis, treatment and progress of the disease in its different forms and stages.

The early recognition of the disease would be simple if the absence of tubercle bacilli was diagnostic of the absence of the disease; but as such is not the case, it becomes necessary to come to a conclusion by signs and symptoms alone.

It is impossible to obtain a correct family history in all cases, but in the class of patients treated at Fort Bayard, (officers and enlisted men of the army and navy) there seems to be no reason for concealing the fact that parents or relatives have died from consumption. In about two per cent there is a history of either parent having died of the disease, and about four per cent of either uncle or aunt. The conclusion drawn from these facts is

that heredity has little or nothing to do with liability for developing the disease, and as the tubercle bacilli are recognized to be the cause, it is therefore more probable that it is contracted; that the mode and condition of living are, after all, the real factors, as no one seems to be immune.

The resisting power is lessened under certain unfavorable conditions and it is at this time that the disease is contracted. Conditions favoring loss of resistance are principally: previously having had some disease of an enervating character, crowded, close living, absence of sunlight and fresh air, and living in damp, moist climates.

The four varieties of the disease spoken of in this article are: miliary, caseous, fibro-caseous and fibroid, the classification depending upon the degree of activity of the morbid changes.

Miliary tuberculosis is in the great majority of cases caused by the breaking down of an old lesion which has been incapsulated, thus causing reinfection and a very rapid extension of the disease, as it is shown that in such cases recent tubercles are found in a part of the lung which was previously free from infection.

The symptoms may be either gradual or sudden, and are, as a rule, those which precede an acute febrile disease; that is, loss of appetite, headache, malaise or hemorrhage may be the first indication the patient has that trouble exists. Dyspnoea is noticed from the first, and as the case advances becomes more marked, respiration reaching as high as sixty a minute. The lips and finger tips become cyanotic, varying in degree as to the extent of lung tissue involved. The temperature is usually high and irregular, and may present the inverse variety. The pulse is feeble and very rapid; albumen is almost invariably present in the urine.

If the lesion is old and extensive it will not be difficult to recognize, but in cases in which the disease has become arrested and the lesion small, a slight increase in vocal fremitus and diminished expansion at one apex may be all that can be discovered. The percussion note may be normal or slightly impaired. On auscultation expiration may be prolonged and harsh rales, bubbling in character accompanied by sibilant rhonchi.

In miliary tuberculosis as a terminating cause of a chronic infection, the signs may be few in the previously unaffected portion of the lung. The prognosis is extremely unfavorable, and such cases are benefitted very little, if any, by climatic changes.

Caseous tuberculosis of the lungs presents the bronchopneumonic type, in which the disease is scattered throughout the lung, and the lobar type, in which it is confined to one lobe. The onset may be sudden or insidious; when insidious there is anorexia, cough, slight pyrexia, pains in the limbs and gradual loss of weight and strength. Hemoptysis is often the first symptom noticed, but in a comparatively short time the general symptoms become well marked. There is high fever, a hectic flush on the cheeks, chills and night sweats, the skin is hot and dry, and emaciation is very rapid, an evidence that the disease is extending rapidly throughout the lungs. The sputum becomes more profuse and changes from mucoid to purulent, blood stained and often of greenish color. The pulse is quickened and respiration becomes more rapid. At this time tubercle bacilli are almost invariably found in the sputum, especially in that which presents a greenish tinge. The temperature is high and irregular.

In the lobar variety there is usually a period of impaired health, though it may first become manifest by a severe chill and rigor, followed by pain in the side; the attack in this respect resembles pneumonia. There is high fever, cough, rusty expectoration and marked dyspnoea. The physical signs are usually first noticed at the apices, loss of resonance on percussion accompanied by crepitation. Frequently, however, the first signs are rales, diffuse over both lungs, at first bubbling and then becoming metallic. Tubular breathing is not always heard at first as the exudate fills the bronchi, but when the area becomes completely consolidated breathing is typical tubular, bronchophony well marked; in fact, so much so that care should be taken to distinguish it from cavity formation. Again, as the consolidated area breaks down large, moist and bubbling rales are present; it is at this stage that a cavity usually forms and may be detected by amphoric breathing, whispered pectoriloquy, and the so-called cracked-pot sound on percussion. If the cavity is dry no rales

are heard, but if moist, rales of a large bubbling character are present. A pleuritic friction rub is usually present, and signs, i. e., dullness on percussion and absence of breath sounds, may reveal an effusion.

The lobar variety is oftentimes mistaken for pneumonia, and suspicion is aroused only by absence of crisis. This form of the disease is not so fatal as is supposed. Hemorrhage is not frequent, though I have seen three cases die as a result of haemoptysis.

Fibroid tuberculosis is always insidious in onset, never acute. It is in this form of the disease we find fibroid changes at post-mortem, there being no history of the illness other than perhaps a slight cough, very little or no expectoration, some loss of weight and a slight fever, the latter not being constant. Hemorrhage is frequent and may be profuse, but quickly recovered from and work resumed without any inconvenience. I have one case under observation at the present time, in which hemorrhage occurred at intervals for four years, but no other symptoms were noticeable at the time. It is now twelve years since the last hemorrhage occurred and the patient is at present in perfect health. There is, however, marked evidence of fibroid changes at both apices. As the lesion increases in extent, the result is that more of the lung tissue becomes emphysematous and the patient suffers from dyspnoea and may have attacks of asthma. These symptoms should always suggest the presence of the disease.

The cough is seldom severe and usually occurs in the morning. It is not paroxysmal nor does it cause vomiting. Night sweats rarely, if ever, occur. There is absence of diarrhoea and the sputum is, as a rule, free from tubercle bacilli for long periods, or they may never be found.

Upon physical examination some retraction of the supra- and infra-clavicular regions with defective expansion may be detected. If, however, emphysema has developed around the lesion, retraction will not be noticed. The resonance on percussion is slightly defective or may indicate the presence of emphysema. The breath sounds are usually feeble, and expiration is prolonged and fine crackling râles, which may be mistaken for pleuritic friction

rubs, are often found. The râles may be widely distributed throughout the lungs. If a cavity exists, it is usually dry.

In the fibro-caseous or chronic form of the disease, the mode of onset varies a great deal; the most common, however, is insidious, and the patient is unable to state when he first became sick, and will probably date it back to a cold or an attack of la grippe, and has had since that time some cough and expectoration, gradual loss of weight and strength, frequent night sweats, nausea and vomiting after meals, cheeks flushed and a slight afternoon temperature.

When the onset is haemoptoic there are, as a rule, no previous symptoms, the patient feels perfectly strong and well until he has a hemorrhage, which may be small or large, quickly recovered from, however, and work resumed. In a short time he has another hemorrhage, and this may be repeated without any of the usual physical signs of the disease being detected, but sooner or later the usual symptoms and signs will become manifest. In cases of this kind the process has, in all probability, gone on for some time, either very slowly, or an old lesion, which has previously existed without the patient having ever felt its effects, has suddenly become slightly active. Cases in which pleurisy is the first symptom noticed, are quite common. The usual signs of pleurisy are found, and frequently an effusion. The usual symptoms of cough, expectoration, night sweats and emaciation are present or quickly follow the pleuritic attack. While the mode of onset is different the early symptoms are practically the same and have been described. Cough is the earliest and most lasting of all symptoms. It is usually at first dry and hacking. Soon, however, some sputum is raised, though not constant, but usually in the morning and after drinking hot liquids. When the disease advances, the cough at times becomes paroxysmal and causes vomiting. The character of the sputum is at first glairy clear thick mucous, but in a short time it becomes dotted with little yellow or greenish nodules. With the advancement of softening or clearing the sputum becomes more purulent until finally it is altogether purulent, except when mixed with saliva, or contains streaks of blood. Respiration is increased in

proportion to the amount of lung tissue involved, and dyspnoea is present to some extent. Loss of appetite at times is one of the most noticeable features and signs of gastric catarrh are usually present at the onset of the disease. Diarrhoea is more common in the latter stages, though a tendency to constipation is met with in some cases. Vomiting usually follows paroxysms of coughing and occurs more frequently after meals. The physical signs vary, of course, in the early and later stages the signs of infiltration are, upon inspection, diminished expansion of the affected side, clavicles more prominent and the supra- and infra-clavicular spaces sunken.

Percussion.—In the very early stages no difference will be noticed in the percussion note, but as the disease advances it becomes dull.

Auscultation.—The breath sounds under the right clavicle are usually bronchial and is sometimes mistaken for cavities when no lesion exists. The sounds are usually harsher and more feeble than normal, expiration is prolonged and rales are absent. As the area becomes more profusely infiltrated, breath sounds become more harsh, higher pitched, and a few fine rales are heard at the end of inspiration. As the lesion softens the rales are more persistent and become bubbling in character, and the breath sounds more high pitched and bronchial, vocal resonance is increased and bronchophony present. The process of softening, if not arrested, forms a cavity and is detected by the following signs: Expansion is diminished on the affected side, the supra-clavicular and supra-spinous fossae sunken and the chest flattened; vocal fremitus is greatly increased, both anteriorly and posteriorly; the percussion note may be high pitched or tympanitic. If the cavity is near the surface and of large size the so-called cracked pot sound may be present. On auscultation the breath sounds are cavernous, expiration being lower pitched and more hollow than inspiration and pectoriloquy pronounced.

The following table of cases comprises those treated within the year ending July 1, 1903. The improved cases are those which show a decrease in extent of tissue involved: Those cases

in which the disease has simply become arrested are classed as unimproved:

No. of cases treated during the year	506	
No. of cases in Hospital June 30, 1902.....	150	
No. of readmitted cases	356	
No. of cases discharged improved	157	
No. of cases discharged unimproved	73	
No. of cases remaining improved	124	
No. of cases remaining unimproved.....	89	
Total No. improved.....	281	55.53%
Total No. unimproved.....	167	32.02%

Of 356 new and readmitted cases during the year there were:

Discharged improved	84
Discharged unimproved.....	50
Remaining improved.....	95
Remaining unimproved	75
Total improved.....	179
Total unimproved.....	125

Of 150 cases in Hospital June 30th, there were:

Discharged improved	73
Discharged unimproved.....	23
Remaining improved.....	29
Remaining unimproved	14
Total improved.....	102
Total unimproved.....	37

Cases now in Hospital	213
No. showing improvement.....	124
No. not showing improvement.....	89
Total showing improvement.....	58%

Case 1. Mar. 14, 1902. Age 23. Family history, negative. Past history—Diseases of childhood. Always well till January, 1902, when he spit up blood, followed by a severe hemorrhage. For two or three months previous to this, had a slight cough. Normal weight, 130 pounds. Present weight, 112 pounds. Lungs, anterior increase of tactile fremitus over the right lung above nipple line. Increased density over upper lobe of left lung. Few rales over right lung above third rib. Few rales over left lung above second ribs. Remainder of lungs clear. Posterior increase of tactile fremitus both bases.—Numerous moist crepitant rales over right lung above sixth dorsal vertebra. Few rales over left lung above fourth dorsal vertebra. Sputum, positive for tubercle bacilli.

Nov. 14, 1902. No physical signs of disease. Sputum—very few tubercle bacilli after three examinations.

May 5, 1903. Only very slight evidence of any former trouble in either lung. Sputum—negative for tubercle bacilli after ten examinations.

Case 2. April 4, 1901. Age 42. Family history, negative. Past history—always well till he contracted a cold in 1900 in China. In December, 1900, began to have pains in chest, followed by night sweats and blood stained sputum. Normal weight, 150 pounds. Present weight, 124 pounds. Lungs—consolidation of right upper lobe. Infiltrated remainder of right lung and left apex. Sputum—tubercle bacilli.

Oct. 4, 1901. Weight, 130 pounds. Lungs—Right lung consolidated above third rib. Cavity in apex internally. Right base consolidated. Dry, fibrous, infiltrated remainder both lungs. Slight activity in left upper lobe. Sputum—tubercle bacilli.

Aug. 18, 1903. Weight, 123 pounds. Lungs—dry cavity right apex. Slight infiltrated remainder right lung. Few dry rales in left apex. Sputum—tubercle bacilli in moderate number.

Case 3. June 16, 1903. Age, 26. Family history, negative. Past history—Caught a severe cold in November, 1902, and began to cough and expectorate. Frequent afternoon fever, followed by pains in right side and loss of weight and strength. January, 1903, breath became short on exertion. February, 1903, had four profuse hemorrhages, and since then frequent blood stained sputum. No night sweats. Normal weight, 185 pounds. Present weight, 138 pounds. Lungs—few rales below fourth rib in right axillary line. Lower lobe of left side infiltrated. Sputum—negative for tubercle bacilli.

Aug. 18, 1903. Weight, 165 pounds. Lungs—few moist rales left lower lobe. Sputum—negative for tubercle bacilli

Case 4. Nov. 13 1903. Age, 25. Family history, negative. Past history—Always well till Oct., 1901, when he had frequent painful mucous discharges from bowels while at Minila, P. I., and have continued to date. In January, 1903, caught a severe cold. Cough began in February, 1903, and has been constant to date. Pains in chest followed in May, 1902, and expectoration in July, 1902, to date. Has had no night sweats, blood stained sputum or hemorrhages. Slight loss of weight. Normal weight, 140 pounds. Present weight, 127 pounds. Lungs—infiltrated right upper and middle lobes and left upper lobe. Sputum—purulent; moderate tubercle bacilli.

Aug. 20, 1903. Weight, 133 pounds. Lungs—slight infiltration left upper lobe. Few dry rales right upper and middle lobes. Sputum—tubercle bacilli.

Case 5. July 6, 1902. Age, 34. Family history, negative. Past history—always well until March 12, 1902, when he was taken sick with fever and pains in left chest. Normal weight, 144 pounds. Present weight, 133 pounds. Lungs—Infiltrated entire left lung; more active in upper lobe. Sputum—purulent; moderate number of tubercle bacilli.

Jan. 7, 1903. Weight, 147 pounds. Lungs—Infiltrated left upper lobe posterior. Moist rales right apex. Sputum—moderate number tubercle bacilli.

June 19, 1903. Weight, 150 pounds. Lungs—Infiltrated left upper lobe. Dry rales in left upper lobe. Sputum—tubercle bacilli.

Case 6. May 23, 1901. Age, 26. Family history, negative. Past history—malaria in 1898. Contracted cold with slight cough in fall of 1900, followed by expectoration. Pains in chest began in February, 1901. Occasional blood stained sputum and night sweats. Normal weight, 165 pounds. Present weight, 145 pounds. Lungs—slight infiltrated right apex and left lower lobe anterior. Sputum—few tubercle bacilli.

Nov. 22, 1902. Weight, 157. Lungs—Rough respiration left apex. No other physical signs. Sputum—negative for tubercle bacilli.

Aug. 17, 1903. Weight, 156 pounds. Lungs—Few fine rales posterior level second dorsal vertebra right. Sputum—negative for tubercle bacilli.

Case 7. Jan. 5, 1903. Age, 43. Family history, unknown. Past history—typhoid fever in 1883. Pneumonia of right lung in 1888. Malaria Oct. 1898, after return from Cuba. Pleurisy in left side Aug. 1900. Diarrhoea for six months in Philippine Islands, from December, 1901. Began to cough and expectorate in October, 1902. No fever, night sweats, no hemorrhages. Normal weight, 136 pounds. Present weight, 110 pounds. Lungs—Infiltrated both apices. Sputum—few tubercle bacilli, after three examinations.

July 8, 1903. Weight, 130 pounds. Lungs—Infiltrated left side anterior apex to fourth rib. Right apex anterior but little involved except at level third rib, anterior axillary line, where active infiltration is found. Sputum—moderate number tubercle bacilli.

Case 8. April 19, 1903. Age, 26. Family history, negative. Past history—Dysentery began in March, 1900, at G—(duration 1½ years). Appendicitis in July, 1901. June, 1902, began to have headache, pains in left chest, fever, cough, expectoration and night sweats, with rapid loss of weight and strength. Profuse hemorrhage, Feb. 1903. Since then frequent pains in left chest and occasional blood stained sputum. Normal weight, 145 pounds. Present weight, 126 pounds. Lungs—Consolidation in right apex. Infiltrated right lung, except lower part anterior. Infiltrated left upper lobe. Sputum—few tubercle bacilli.

July 7, 1903. Weight, 128 pounds. Lungs—Infiltrated right upper lobe and left lower lobe. Sputum—few tubercle bacilli.

Case 9. Jan. 1, 1903. Age, 24. Family history, negative. Past history—Always well till July, 1901, when he had a slight hemorrhage, followed by night sweats. Since then has had a slight irregular cough and expectoration, occasional pains in left side, blood stained sputum and loss of weight and strength. Normal weight, 165 pounds. Present weight, 140 pounds. Lungs—Infiltrated left lung above second rib. Sputum—tubercle bacilli.

July 3, 1903. Weight, 142 pounds. Lungs—No abnormal respiratory signs. Sputum—tubercle bacilli negative.

Case 10. Jan. 15, 1902. Age, 33. Family history, negative. Past history—Always well till August, 1901, when he caught cold, and has had constant cough and expectoration since. Had night sweats but no hemorrhages. Weight not given. Lungs—Consolidated left lobe above third rib. Small cavity in internal apex. Cogwheel respiration in left lower lobe. Sputum—tubercle bacilli.

July, 1902. Weight 112 pounds. Lungs—Activity confined to left upper lobe. Partial consolidated right lobe above second rib. Sputum—tubercle bacilli.

Jan. 17, 1903. Weight, 109 pounds. Lungs—Infiltrated above second rib and fifth dorsal vertebra both sides. Sputum—tubercle bacilli.

July 17, 1903. Weight, 118 pounds. Lungs—Consolidated left apex to third rib. Small area infiltrated in right upper anterior level second rib inner side. Consolidation is apparently undergoing fibrous changes. Sputum—tubercle bacilli.

Case 11. Dec. 16, 1902. Age, 42. Family history, negative. Past history—Had chills and fever in Cuba in July, 1898. Had dysentery for one year 1899, in the Philippine Islands. Caught severe cold in December, 1900. Since then has had constant cough, expectoration, night sweats, pains in chest and hemorrhages. Normal weight, 155 pounds. Present weight, 136 pounds. Lungs—Incomplete consolidation in right upper lobe. Complete consolidation with possible cavity in middle lobe. Sputum—purulent; few tubercle bacilli.

June 9, 1903. Weight, 143 pounds. Lungs—Cavernous breathing and pectoriloquy with coarse rales in left infra-clavicular region. Dullness in left axillary region with coarse rales. Increase tactile fremitus upper part of right lung. Posteriorly both apices dull. Percussion note higher pitched right side level dorsal vertebrae and few rales at level seventh rib. Process does not seem active. Sputum—very few tubercle bacilli after eight examinations.

Case 12. Jan. 27, 1901. Age, 25. Family history, negative. Past history—Had malaria in Cuba from 1898 to date. Had a Hemorrhage in 1900. Since then constant cough and fever, more hemorrhages, some night sweats and loss of weight. Normal weight, 147 pounds. Lungs—Slightly active infiltrated both apices. Sputum—negative.

July 22, 1901. Pulmonary condition unchanged.

Jan. 23, 1902. Pulmonary condition unchanged.

July 11, 1903. Few dry rales both apices. Sputum—no expectoration. Weight, 136 pounds.

In the foregoing report of the course of twelve cases I have endeavored to select those which show gradual as well as rapid

improvement, and those with slight lesions as well as extensive involvement of lung tissue. It will be noticed that only two cases show a very marked increase in weight, that the rest have remained about the same or have gained but slightly, which latter is most noticeable. If, at the end of three months the patient has gained say—twenty pounds, his examination will probably show that he has lost at least ten pounds of that gained at the end of six months. But instead of the muscles being soft and flabby they will have become hard and firm. The skin will become soft and near its normal color, and in every way will it be proven that the state of general nutrition is improved. As to the course of the disease, upon the patient first having arrived in this altitude it is usually as follows, of course, varying as to the extent and activity of the lesion:

The patient usually takes to his bed; temperature subnormal in the morning, ranging from 101° to 103° in the afternoon, pulse and respiration quickened, the latter reaching as high as forty per minute and the former 140. Patient complains of headache, loss of appetite, inability to sleep, shortness of breath, night sweats and some pain in the legs and lumbar muscles. This reaction lasts from one week to two months; the first change for the better being a decrease in the afternoon temperature, absence of night sweats, and an improvement in the appetite. The heart and respiration seek the normal and the patient gains strength and some in weight. This reaction is in all probability due to an increased activity on the part of the tubercular lesion, and is so marked that patients reaching us, who present very few physical signs of the disease, are reexamined at the end of ten days, at which time it is comparatively easy to locate and map out the infected area.

It is at this period that the patients lose courage and leave for their homes without giving themselves a chance to become acclimated. It would be well, therefore, to warn all those who are to seek health upon the Rocky Mountain plateau of that which they should expect, until they become acclimated.

Too many come with the idea and advice that two or three months will be sufficient to restore them to health, and at the

expiration of that time will be able to return to their homes in the East and resume their occupations. Such advice is not just to the patient, as most of those coming here have discovered for themselves. On the other hand, they should be advised that a climatic cure is not a matter of a few weeks or months, but of a year or even more, and that they will not feel well and strong in a few days but should come with the idea of making this plateau their home for the time being.

The mode of living should be that of absolute quiet and rest. It is the practice of many to advise their patients to "rough it," live on a ranch, to spend several hours each day in the saddle and to take long walks. When such a life is led it is only a question of a few months until the patient is beyond all hope of recovery or even improvement.

When the case is running a temperature, has loss of appetite, increased respiration and heart's action, it should be regarded as acute, and treated accordingly. And in the course of time when the fever subsides, appetite and some strength regained, then let the patient get out of bed and take some exercise; not too much, however, and above all, not in the saddle. But let him walk a short distance each morning and evening—say one mile in all, and then it will be found that the case will improve, and in some instances, clear up a large area in a very short time (Case 3).

As to the ranch life in the West, it is about as rough and uninviting to the sick as any mode of life could be. Ranches depend almost entirely on that which is shipped in for supplies; therefore, the food is nearly all canned, and it is next to impossible to secure eggs and milk. It is a cause to wonder that ranches which boast of hundreds of heads of cattle have no milch cows with which to supply the table with milk and butter.

Those suffering with pulmonary tuberculosis should come to this country with the idea of living in town or city and being in the open air as much as possible. The best and cheapest way to live is in a tent, stretched over a frame with the sides screened and the floor raised about three feet from the ground. In this way perfect ventilation can be secured. If the wind is blowing, the flap of the tent on that side can be let down, and the screens will protect the patient from the annoyances of flies and insects.

If a tent is not desired, a room should be secured which opens on to a porch, the bed placed on the porch and the patient sleep outside. The only time spent in the room either by day or night, should be in dressing or bathing; the rest of the time should always be in the open air, either in bed or lounging or for the short morning or evening walks. This mode of living should be practiced in winter and summer, weather permitting.

The food should be of the most simple and nutritious, milk and eggs forming the principal diet. The eggs should be taken raw, and can be made palatable by the use of salt and pepper with a little lemon juice squeezed over them, or, if the patient desires a little sherry wine poured over the eggs will answer the purpose. In this way, eight to twelve can be taken in a day with great benefit. Milk should be taken in large quantities, but care should be taken by the physician in charge to see that it is properly digested.

The treatment is systematic. In advanced cases it will be necessary to stimulate the heart at intervals. Nitroglycerine seems to be that which has given the most satisfaction at Fort Bayard, especially in the most severe cases. Those in whom the heart's action is good should never under any circumstances indulge in alcohol, other than the small amount taken with eggs. It has been my experience that those abstaining from its use progress more satisfactorily.

Cough is one of the most constant and troublesome of all symptoms, and is the most difficult with which to deal. It should not be stopped entirely by the use of opiates but should be regulated, if possible, by such remedies as we have.

A glass of hot milk or water will often prove efficient, especially at night when the cough is dry and hacking. Codeine is of great value, but it should be used with caution, as the habit is easily acquired. The following formula will be found very beneficial:

Codeine Sulph.	1.9
Acid Hydrochlor. dil.....	30.
Spts. Chloroform.....	15.
Syrup Simp.	120.
Aqua q.s. ad.....	180.
M. Sig. 4 c.c. as indicated.	

Heroin is by far the most valuable of all expectorants, and a dose given at night will allow the patient to sleep well and in the morning raise the sputum with great ease. It is sometimes possible to secure specimens of sputum which contain tubercle bacilli in cases which have previously proven negative, by the administration of heroin. I have several cases under observation at present, in whose sputum tubercle bacilli are absent unless heroin is used. The following formula is used at Fort Bayard:

Heroin .....	.324
Acid Hydrochlor. dil.....	15.
Spirits of Chloroform.....	30.
Syrup Simp.	120.
Aqua q.s. ad.....	180.
M. Sig. 4 c.c. at night.	

The above formula is also useful in paroxysmal coughing, and if given at once will prevent vomiting. If, however, vomiting has started, small doses of cerium oxalate and carbolic acid, the latter freely diluted, will often prove efficient.

The appetite is best stimulated by the use of tincture nucis vom., dil. hydrochloric acid and tinct. gentian comp.

Pleurisy is always present at some time during the disease, and should always be carefully watched so that effusion, in case it occurs, may be at once detected.

Strapping the side, painting with C. C. Iodine and hot applications will often give relief. If, however, the pain is still severe after the use of the above, it will be necessary to give opium in some form. The patient should not be allowed to leave his bed, but should continue to sleep out of doors during the pleuritic attack. If there is effusion, tapping should at once be resorted to, and if the case is found to be one of empyema rib resection should at once be performed. It is not necessary to remove sections of two or three ribs, removal of about two inches of one is sufficient, and free drainage can be established and maintained. Potassium permanganate 1-1000, used warm for irrigation has given excellent results at this hospital, and should be used at least once each twenty-four hours.

Hemorrhage is usually easily controlled by the use of morph. sulph. .016 and atropine sulph. .001 hypodermically, the patient

lying flat on his back, the head low and an ice pack on the chest. Ergotine given in tablet form every four hours, as long as the sputum contains bright red blood is indicated. The fluid extract of ergot frequently causes nausea and vomiting, and should never be given on that account.

Night sweats are troublesome and hard to control in advanced cases, but in those with a small area of involvement, though the lesion may be active atropine sulph. .001 given either by mouth or subcutaneously will check and eventually control them. Camphoric acid .324 every four hours for two or three days is beneficial.

The temperature in tuberculosis varies as to the extent and character of the lesion, that of the miliary variety being highest and lowest in chronic fibroid. If a chart is kept it will be found that it will be characteristic of that variety of infection from which the patient is suffering. Those running a temperature should never under any circumstances leave their bed, but should, however, continue to remain out of doors.

Ice baths are never indicated in pulmonary tuberculosis, but alcohol rubs and sponge baths should be used when the temperature reaches 103° or more. Phenacetine and caffeine citrate exert a very marked influence over the fever, and should be given every four hours. Its prolonged use, will, however, cause sweating, which can be checked by the use of atropine.

In this report it has been my object to point out, as briefly as possible, the diagnostic features of the disease in its earlier stages and to show the course in this climate; also to show the mode of life which should be followed in order to obtain any beneficial results, and to emphasize the fact that the disease cannot only be arrested but cured, if proper care is taken by the patient.

FRACTURE OF THE HEAD OF THE RADIUS.

By CHARLES EDWARD BANKS, M.D.

SURGEON IN THE PUBLIC HEALTH AND MARINE
HOSPITAL SERVICE.

A CASE of unusual rarity in fractures occurred at the Marine Hospital, Chicago. J. N., the surgical nurse, while "skylarking" in the kitchen stumbled and fell, striking on his left open palm which he had thrust out to save himself. He received the full weight of his body upon that arm which soon began to swell and pained him severely about the elbow. Examination shortly after the accident revealed crepitus at the joint, the radial head not turning in the complete arc on rotation. Extension and flexion were limited. The radius rotated as far up as could be felt under the layer of muscles. A diagnosis of fracture of the head of the radius was made tentatively. The literature of the subject showed it to be one of great rarity and the results of treatment unsatisfactory. This fracture was the result of indirect violence, plus muscular contraction. With two fixed points, the palm and the trochlear surface of the humerus, the radius was acted upon by the biceps in sudden contraction when the man endeavored to arrest his fall, and the power was thus applied between fulcrum and lever. In addition to this the head was comminuted by the direct blow. The location of the fracture as brought out by the x-rays is shown on the following page.

The arm was dressed in the semi-flexed position, between supination and pronation, and passive motion begun early. An almost perfect result followed. There is complete extension and flexion and only a small portion of the arc of pronation and supination not capable of its function.



Skiagraph of Surgeon Banks' Case of Fracture of the
Head of the Radius.

THE UNITED STATES NAVAL HOSPITAL SHIP,
RELIEF, WITH SOME NOTES ON
HOSPITAL SHIPS.

By WILLIAM C. BRAISTED, M.D., PH.B.,
SURGEON IN THE UNITED STATES NAVY.

IT was planned some time ago by the Surgeon General of the United States Navy to equip a hospital ship for the service. The *Relief*, a ship used by the Army during the late Spanish War was selected and work has been in progress for some time looking to her final commissioning for the purposes of a Naval Hospital Ship. The work so far undertaken and completed may be of interest. Concerning the history of this special ship, it is to be noted that the *Relief* was originally built by the John Roach Ship Building Co. She was built in 1896 at Chester, Pa., and was first used as a coast-wise passenger and cargo steamer running along the New England Coast. The *Relief* is a schooner-rigged steamer, with steel hull, propelled by a single screw, with powerful triple expansion engines, which should give her a speed of sixteen knots, easily. Her length over all is 314 feet, with a free board of 12 feet from the water line to the main deck. Her displacement is 3,400 tons; her coal capacity about 700 tons, giving a possible steaming radius of 3,500 miles. The ship is provided with water-tight bulkheads at frames Nos. 11, 51, 95, and 137 as shown in the plans of the ship.

She has three decks that can be utilized for hospital purposes: a lower deck, a main deck, and an upper deck, with a hurricane deck that gives room for promenade, storage of boats and an infectious pavilion.

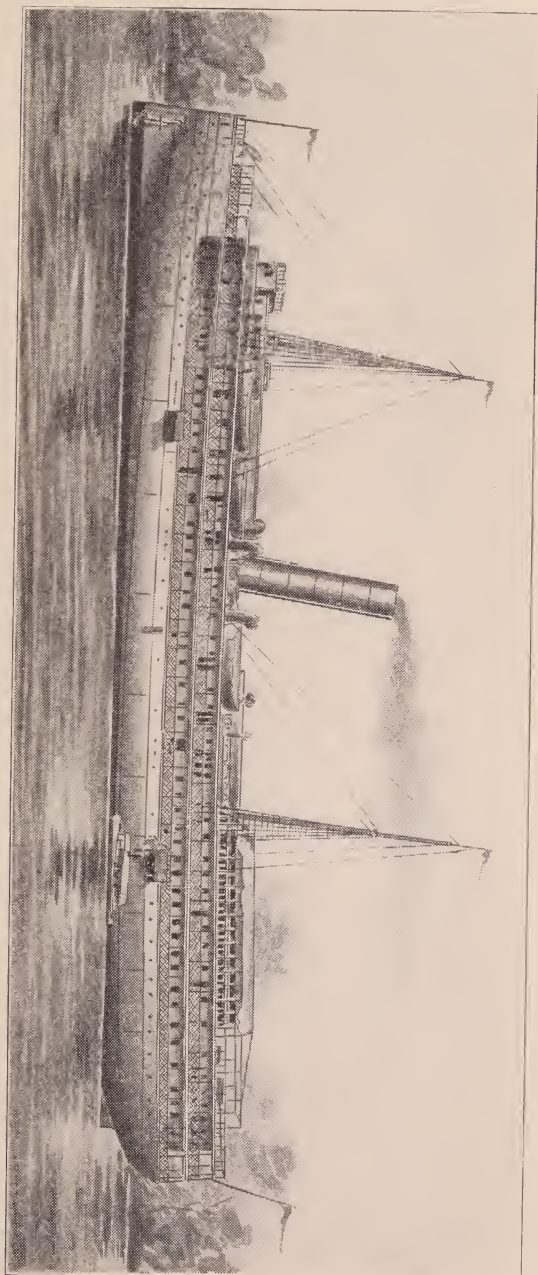
During the Spanish War this vessel was fitted out by the Army as a hospital ship, remaining in the Army service until November 13, 1902, when she was placed out of commission at the Mare Island Navy Yard, and was left in this condition until

the present work of refitting her for the Navy was commenced last Spring. Much deterioration had naturally taken place, and the demands of the Navy with its special conditions called for a complete remodelling of the ship on somewhat different lines. About the only things remaining of her former outfit is the ice-plant and the so-called standee bunks.

The ship has been completely renovated, surfaces scraped, painted and renewed, and the space divided as follows:

THE ORLOP DECK space contains, forward, large cold storage rooms capable of holding fresh provisions for two to three

United States Naval Hospital Ship "Relief."



cold storage. The double engine of the ice-plant will allow the machine to run day and night if necessary. On the starboard side of this lower deck has been installed a large laundry, with steam wringers, mangles and washers, also drying racks, capable of washing for 200 or more patients. In connection with this plant is a steel disinfecting chamber fitted with the largest size Kny-Scheerer convertible steam and formaldehyde disinfecter. The chamber is air-tight and the disinfected material comes through the autoclave into the laundry, at a convenient place for washing if necessary.

About midships, on the starboard side of this deck, is a large, airy dynamo room, with work shop attached. The electric plant is composed of two dynamos of 137 amperes and 110 volts each. This, it is thought, will furnish abundant power for all purposes requiring electricity, such as lights, heating electric stoves for warming food, heating water, etc.; running of motors in the operating room, for cauteries and general electric therapeutic purposes. In addition to this the plant is expected to furnish the usual supply needed for running the ship proper, outside of hospital needs. An abundance of lights, carefully wired and insulated, have been installed, lighting up the whole ship, including the holds and store rooms. The wards are well lighted, and portable electric lamps will give light for bedside work when needed. The operating room is especially richly provided with lamps, so that plenty of light overhead and from the sides can be obtained.

Opposite the dynamo room and on the port side are padded cells for the care of insane patients. These cells are well ventilated and

Plan of the Orlop Deck.

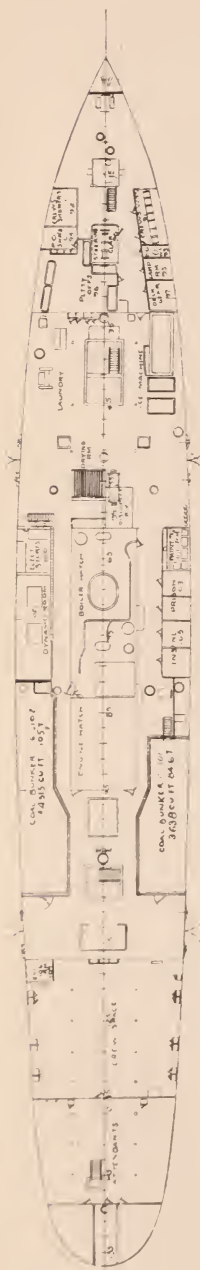


will greatly aid in the care of this class of patients so hard to manage at sea. At the same time these cells are so far removed from the wards, that any noise emanating from them will not disturb the patients in the wards proper.

Further aft on this lower deck, is a generous berthing space for the crew, with messing tables, ship's library and lockers, and aft of this crew space, but separated by a tight compartment, is a space for forty junior male nurses, or hospital apprentices, with a ladder leading to their closets and baths. This enables the junior hospital apprentices to be kept from the crew proper—messing and sleeping by themselves.

THE SECOND or MAIN DECK has, forward, a large ward capable of accommodating fifty-six patients, and to be known as the Convalescent Ward. This ward and all others, except the ward for infectious diseases, is fitted with single and double standee bunks; a capacious bath room and wash room with adjoining closets; a large linen room; a small dressing room fitted with table and usual appliances of a dressing room, also a warming and serving room for proper distribution of food; a small state room for the head nurse, in order that he may at all times be in close touch with the patients, maintain order and direct the ward. A small refrigerator is placed in this ward as in each ward, for the use of patients, and a long table in the center of the ward with chairs, will give these convalescents a place to read and write. This ward has an air space of 14,985 cubic feet, with 267 cubic feet per man. All these spaces are high above the water line, fitted with small windows in place of port-holes, and with an abundance of fresh air and light.

Plan of the Lower Deck.



A small ward of twelve bunks is situated just abaft this ward, on the starboard side, for the accommodation of sick warrant officers, with an adjoining mess room, neatly fitted up and very comfortable; on the port side are baths and closets for this group of patients.

Amidships on this deck, on the port side, are the offices of the Executive Officer, the Paymaster, and the Medical Officer of the Day. The officer of the day's office will contain the medical records, hospital tickets, casepapers, and blank forms peculiar to the Navy, for carrying on the strictly official medical work. There will be a clerk and typewriter in this office for this work.

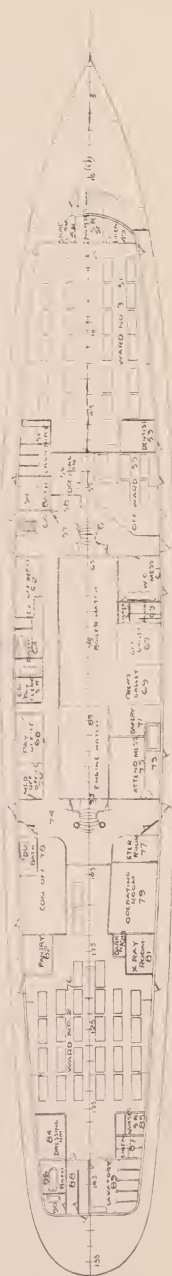
On the starboard side of this deck amidships, are the galleys and bake rooms, with tiled floors and fitted with ranges, bakers, boilers, and all the equipment of a modern kitchen capable of preparing food for 500 people.

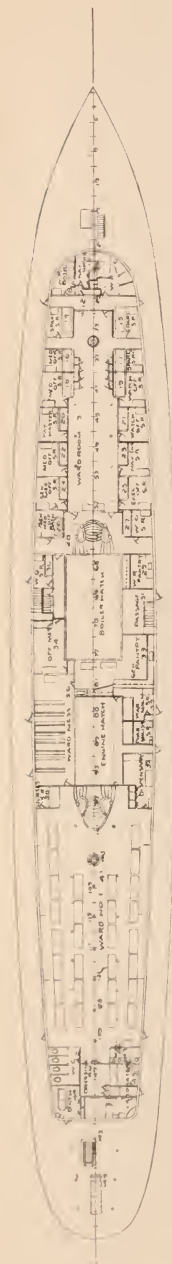
Aft of these galleys is a small space fitted as a mess room for hospital steward and head nurses. This mess room is especially adapted for its purpose, as it is about in the center of the strictly hospital space, and so even at meals the nursing force will be in ready proximity to the wards and patients.

The after half of this main deck comprises a small ward for commissioned officers; the operating room; the x-ray room; the pus-operating room, and the surgical ward with the same outfit as mentioned before for the convalescent ward, i. e., a serving room for food with heater and large electric stove; dish racks; sink and lockers; a room for head nurse; wash rooms; bath rooms; closets; linen lockers and refrigerator.

The operating room is sixteen feet long by twelve feet wide with adjoining sterilizing

Plan of the Second or Main Deck.





Plan of the Upper Deck.

room, x-ray room and electro-therapeutic room. The operating and sterilizing rooms have a vitreous tiled floor, with sides and ceiling closed in with California red-wood, carefully tongued and grooved, and with rounded concave and convex edges. The wooden surfaces have been carefully enameled white and the room made perfectly aseptic. The operating room is fitted with the latest devices known in surgical fittings; a beautiful Boldt operating table; large white enameled stands and racks for holding all the usual dressing jars, basins, pans, etc., etc.; stands for instruments; surgeons' wash stands with hot and cold water (the water being all distilled); electric cauteries and an elaborate surgical instrument cabinet, well filled with an extensive array of surgical instruments. The sterilizing room opens from the main operating room and contains two large dressing sterilizers, one large instrument sterilizer with large hot and cold water sterilizers of the Kny-Sprague type with filter; the use of distilled water and sterilization by heat should make this water supply pure beyond doubt. The room also contains a small instrument table and a large Clough wash stand, for cleaning and washing instruments.

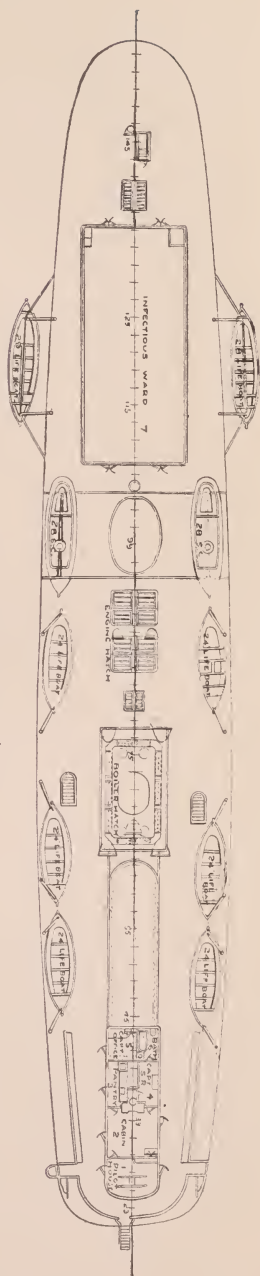
The x-ray room opens directly from the other end of the operating room, and contains the latest and largest Kny-Scheerer coil machine with electrolytic and mercury interrupters, also high frequency apparatus. With this machine is also a complete outfit for taking and developing radiographs, also a fine photographic outfit. The work of developing these pictures is provided for by a small dark room and developing chamber, annexed to the x-ray room. The x-ray room will be painted black so that it will be possible to use this room as a dark room. Electric cauteries, vibrators for massage, electrical de-

vices for the treatment of the nose, throat, eye and ear and for the examination of these organs have been provided. A fine ultra-violet ray has been added to this outfit and with the high frequency apparatus and transformer, both static and galvanic therapeutics are possible. A beautiful set of electrical instruments forms part of the armamentarium, such as electric drills, saws, and trephines.

The surgical ward has an air space of 12,504 cubic feet, accommodates forty patients and has 312 cubic feet per man. The ward is light and airy and only the inner tier of bunks are double banked, so that there is free ventilation and the patients are easily handled.

THE UPPER DECK has aft, a large airy ward, fitted up as a distinctly medical ward. At the forward end is a large general dispensary with adjoining room for the pharmacist. This ward has its own linen locker, baths, wash rooms and closets, also a dressing room, as each of the main wards have. It is the most attractive of the wards, and should be especially comfortable and efficient.

Forward on this deck is a large mess room or dining room for the use of convalescent patients. Opening off from this and directly over the ship's galley is a very large and complete general pantry and serving room, equipped with sinks, serving table, dish racks, and steam heaters and warmers. The mess room will accommodate sixty patients at one sitting, and as in each department, the idea of directly connecting each division with its component parts, so here



Plan of the Hurricane Deck.

the mess rooms, pantrys, and serving rooms and galleys or kitchens are all grouped together and connected so as to facilitate the important work of proper feeding.

Forward of the mess room on this deck, on the port side, is a cosy little room fitted up neatly as a lounging room for sick commissioned officers, with sideboard, upholstered seats, table and easy chairs. The accommodations for sick commissioned officers, under the present arrangement are not as roomy as could be desired, and consist of one ward, adjoining the surgical ward, fitted with partially screened white enameled beds, with baths and closets adjoining, a desk and chair for the nurse on duty, and a small table for messing. Each officer is given a portion of the wards so arranged that it can be screened off by white curtains, thus giving an extra degree of privacy and quiet.

The forward space on the upper deck is the ward room, with adjoining state-rooms for the commissioned officers on duty, except the captain, who has quarters on the hurricane deck abaft the pilot house. The ward room is roomy and pleasant and has the usual fittings found in a ward room aboard any naval vessel.

THE HURRICANE DECK has been fitted up with an infectious ward in its after part, that will prove especially useful in the tropics. This ward is completely screened, built of light frame screens on a hard maple flooring. The roof is closed in by sectional frame screens, and over this will be double awnings to break the force of the sun's direct rays. There will be thirty cots in this ward. It will be absolutely fly- and mosquito-proof. In one corner is a latrine, which is piped over the side independently of any other piping or plumbing, so that there will be no possibility of any contamination. Mess tables and wire lockers are provided for the ward uses.

Forward on the hurricane deck are the captain's cabin, office and mess room.

Among the special fittings may be mentioned a dental parlor, fitted with the best S. S. White Dental Outfit and benches for mechanical and crown work. A neat desk is provided with a system of clinical dental charts for keeping records of cases. This place is amply supplied with lights and electrical appliances.

The finish is tiled flooring with white enameled finish for wood work. This work will be in charge of an experienced dentist, who will do the dental work for the ship and of the fleet, when the hospital ship is a part of any fleet.

A dead-room has been provided, and will be fitted with cold storage pipes. A complete embalming outfit has been provided and will be in charge of an instructed hospital steward.

Two rooms, aft on the upper deck, have been fitted up, one as a bacteriological laboratory and the other as a chemical laboratory. The outfits for these laboratories are complete and give in small space the same facilities for doing laboratory work that can be found in many of the larger laboratories of similar character in connection with institutions ashore. A complete microscopical outfit and general professional library with at least two standard works on each subject will be a part of this department. Cultures for diagnostic and research purposes will be carried and together with blood and parasitic research should be especially valuable in the study of diseases in the tropics and in places remote from the active medical centers. This department, it is expected, will be in charge of a medical officer especially trained for this work.

The medical staff will consist of one senior medical officer, in charge of the distinctly hospital features of the ship; one surgeon, as assistant to the senior medical officer and as operating surgeon; one assistant in charge of medical cases; a specialist in tropical diseases and diseases of the eye; and one assistant as a specialist in laboratory work and who will have charge of the infectious ward.

The hospital force will consist of one pharmacist in charge of the storerooms and dispensary; one steward in charge of the records and anesthetist; one steward in charge of the operating and dressing rooms and also of the surgical dressings; one steward (a graduate dentist of some years practice in civil life) as dentist; six first class hospital apprentices; one head nurse in charge of each ward; one in charge of warrant officers' and one in charge of sick commissioned officers' ward; hospital apprentices eighteen to twenty, to act under the head nurses in charge

of the wards, as attendants to sick officers, to furnish night watch, and for general cleaning and ward work.

All medical officers and hospital stewards will be assigned appropriate fields of instruction in the Corps, and daily lectures, recitations, practical demonstrations, U.S. Navy Drill Regulations, transportation of sick and wounded, etc., etc., will be given; the course of instruction being equal to, if not superior, to that of any school of nursing.

The accompanying plans of the *Relief* are added for purposes of comparison and study. The *Relief* is still under construction and the period of her active work not yet determined.

COMMENTS ON HOSPITAL SHIPS IN GENERAL.

While hospital ships are by no means a new feature in military and naval life, yet they have probably not yet reached their highest perfection. The efforts of the past fifteen years have been far in advance of anything ever contemplated before, and the probable developments in this line for the next twenty years will undoubtedly be striking. The idea in fitting up the *Relief* has been to attempt to establish afloat a hospital that shall have all of the facilities and comforts of a hospital ashore.

The lessons taught by the experiences of the past, tend to show that much time and thought are still needed to bring this factor in naval medical work to its proper perfection.

It must be understood that it is no more possible to take any old ship and convert her into a model hospital ship, than it is to take an old house and make a model hospital ashore. As certain constructions are designed and fitted for distinct purposes,—as a passenger steamer for passengers, a freight steamer for cargo, a battleship for war,—so a hospital ship should be built from the beginning with the single idea that it is for hospital purposes and nothing else. Until this is done we shall never have absolutely the ideal hospital ship. As in the construction of hospitals ashore a special form of architecture is demanded, so afloat the same ideas must be carried out. How ill fitted the elaborate fret-work and ornamental embellishment of an ordinary pas-

senger steamer is for hospital purposes, where only the smoothest and plainest of surfaces are needed! It is therefore the writer's hope that a hospital ship may sometime be built, from the keel up, with this single idea in view. It would be best built in a civilian shipyard, with no preconceived ideas of what a ship of this character should be, which might hamper in any way the one idea in view.

To be efficient, a hospital ship should be of sufficient size to give room and stability; of not less than 4,000 or 5,000 tons displacement, with a length of 350 to 450 feet and a beam of at least forty feet or more. There should be at least three of her decks clear and unobstructed for the purposes in view. A lower deck for the ordinary household purposes of washing, ice making, berthing of working crew and their closets, washrooms, baths, etc. The holds below this deck should be specially sheathed and divided for store rooms, cold storage, etc., made absolutely smooth and dirt proof. This would leave us two complete decks for hospital purposes, the main deck and the upper deck. These spaces should be divided into four grand divisions, one forward and one aft on each deck. Each division would constitute a ward with its adnexa. In the naval service one ward should be fitted for officers. A light running elevator should be built amidships from the hold to the hurricane deck. The after corners of the ward spaces, on the upper deck, should be fitted as seems best suited for laboratories (chemical and bacteriological) with plenty of light. The ship should have a high freeboard, and the hospital wards be as high above the water-line as possible. The hurricane deck should be substantial, and of size to hold accommodations, forward, for the captain and working officers of the ship. Aft should be the contagious ward, free from everything else. A spacious operating room should be fitted on the upper deck, with sky-lights overhead, and adjoining it should be the sterilizing room, x-ray room, ether and recovery room.

Many plans have been proposed for the arrangement of the space in hospital ships. A plan designed by Surgeon C. F. Stokes of the Navy, is perhaps one of the best. In the "Stokes" plan, the engine and firerooms are situated well aft; the idea be-

ing to leave free unobstructed space forward and to remove the heat and dirt of engine rooms as far away as possible.

Many problems are still unsettled, as for instance the matter of cots or beds. A perfectly satisfactory bed for all purposes, comfortable in a sea-way, with stability and easy to get at, has not yet been perfected.

The transportation of the sick and wounded from a battle-ship at sea to the hospital ship deserves careful study. Some method should be devised for rapidly, safely and comfortably transferring these patients without the use of small boats. Perhaps the most elaborate and elegant method is that shown in the "Stokes Apparatus for Transferring the Wounded at Sea." This method seems perfectly feasible and it is hoped that a practical test of this apparatus may be made in the near future. In this connection might also be mentioned the "Stokes Splint Stretcher," which will be adopted for use on the *Relief*, and a descriptive article of which, by Surgeon C. F. Stokes, U.S. Navy, will be found in the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS, for August 1904.

There is thus a specially rich field for work and study in the matter of hospital ships, and the writer's idea in submitting this paper, is to arouse interest and thought on the subject.

RUBBER GLOVES IN MILITARY SURGERY.

VON Manteufel, (*Roussky Vrach*) advocates the use of rubber gloves in military surgery. These gloves are sterilized and each is placed in a linen bag, which is closed with a button flap, and bears a mark on one side showing where the thumb of the glove is placed. The surgical kit which is used in the field should be provided with half a dozen sterilized pairs of gloves packed in the manner described, and in addition each surgeon and orderly should carry with him linen bags with several pairs of gloves. In using these gloves the flap of the bag is opened and the hand, previously covered with a little talcum, is introduced into the glove without removing it from the bag, the opposite hand being used outside of the bag for putting on the glove. When both gloves are put on, the bags are taken off, and the result is two perfectly sterile hands.

THE OPERATION FOR THE RADICAL CURE OF CONGENITAL INGUINAL HERNIA.

By ALFRED CANDEE SMITH, M.D.,
SURGEON IN THE PUBLIC HEALTH AND MARINE HOSPITAL
SERVICE OF THE UNITED STATES.

THE congenital form of inguinal hernia possesses characteristics which might properly place it in a division by itself with reference to the operation for radical cure, and the meagerness with which writings on the subject of the cure of hernia deal with that form has led me to write the present article, based upon moderate operative experience.

In the normal descent of the testicle, during fetal life, the testicle, in emerging from the abdomen, is accompanied or preceded by a pouch of peritoneum, the processus vaginalis, which forms both the outer covering of the organ and its enveloping sac, the tunica vaginalis. After it descends through the inguinal canal, about the time of birth, the processus vaginalis becomes obliterated above the testicle, and the peritoneal cavity is thereby made intact at the internal ring. Occasionally the pouch fails to become obliterated, and an open track, more or less wide, persists between the peritoneal cavity and the sac of the testicle, constituting the pathway for congenital hernia. In such a case the peritoneal membrane not only invests the testicle but lies close against the vas deferens and other essential structures of the cord and is more or less intimately attached to them. It is this intimate association that many times causes difficulty in operating.

Theoretically the diagnosis of congenital hernia is easy. In actual practice the surgeon is liable to be taken entirely unawares by this condition in operating on adults. In its most typical exhibition the testicle on the affected side is smaller and held higher up in the scrotum than on the opposite side, and the history is that of a hernia existing from childhood; sometimes, however,

there is no descent of hernia in a congenital sac until adult life, and there is nothing to indicate definitely its form. With the hernial contents completely descended and in contact with the testicle, the diagnosis is simplified; but the surgeon who is called on to do the operation for radical cure rarely sees the hernia in such a state.

In the text books on operative surgery and in articles on the subject of the radical cure of hernia there is surprisingly little reference to congenital hernia as a form requiring special consideration. Bryant, in his standard work on operative surgery, under the head of remarks on the Bassini operation, says that, "the separation of the sack from the cord is often very difficult, especially in herniae of congenital origin." But he offers no advice to the inexperienced surgeon on how to meet the difficulty. Marcy, in his work, *The Anatomy and Surgical Treatment of Hernia*, makes mention of the treatment of the congenital sac in describing operative procedures. I quote his words, as follows: "It is sewed across to form the tunica vaginalis testis. The suturing is continued upward to close in upon the cord with its vessels, and the sac is narrowed at its abdominal outlet, to prevent pouching of the redundant peritoneum, and excised." I must confess I do not understand the method from the description; in particular, I do not understand how the sac is narrowed at its abdominal outlet.

It is more commonly stated or assumed by authors that the congenital sac is to be treated at the internal ring in the same manner as the acquired; that is to say, the neck is to be dissected from the cord and transfixed and ligated, the only special measure being the formation and closing of a tunica vaginalis below. I will not say positively that there are cases in which, by minute dissection, the sac cannot be separated from the cord without tearing the former or wounding essential structures in the latter; but there are cases in which it is not practicable, even to the most skillful operator. If, in these more difficult cases, an effort is made to deal with the sac in the ordinary manner, an open rent is pretty sure to be left in the peritoneum next the cord, a dangerous defect to say the least.

The first case of this form puzzled me excessively. The testicle was small and undeveloped and barely descended into the scrotum, and the sac was so closely associated with the vas that it seemed impossible to make a separation. I solved the problem by removing the testicle. Fortunately the patient did not set great store by his ill-formed organ, having another one well-grown, and when I explained that I had to remove it to cure the hernia he expressed no regret; but it was plainly necessary to work out a different method for future cases. My present method is as follows:

After forming a tunic for the testicle out of the lower end of the sac, the remainder of the sac excepting the strip of membrane which lies immediately upon the vas and its companion vessels and nerves, is trimmed away close to the abdominal cavity. A simple wound of the peritoneum results, and it is closed with a continuous suture, one extremity ending at the cord. The transversalis fascia is sutured either with the peritoneum or separately, and the operation is proceeded with according to the Bassini method. The strip which is left attached to the cord consists of peritoneal membrane, thin or thick according to circumstances, and it does not interfere in any degree with the closure of the openings in the sac, either above the testicle or at the internal ring. There is no more difficulty in closing the peritoneal wound completely and securely than in any other situation. The method is so simple as to require little explanation, and it seems to me to be advantageous in dealing with a condition which may otherwise cause embarrassment and possibly lead to an imperfect result.

I am unable to give any figures to indicate the frequency of congenital hernia compared with the acquired form. Out of sixty-three hernias operated upon in sixty adults, of which I have the records at hand, four were of the congenital form. My experience has been with men exclusively. A brief description of the congenital cases follows:

Case 1. Age, 35 years. The hernia had existed as long as the patient could remember. The testicle was small and drawn high up in the scrotum and could be pushed back into the inguinal canal. The sac could not be separated from the cord.

Case 2. Age, 45 years. The hernia appeared when the patient was twenty years old and had therefore existed twenty-five years. The sac at the neck was readily separated from the cord.

Case 3. Age 22 years. The hernia was descended for the first time and was strangulated. The sac was closely united to the vas.

Case 4. Age, 26 years. The hernia appeared when the patient was twenty-two years old and had existed four years. The sac was closely united to the vas.

It will be seen that Case 2, in which the sac was easily separable from the cord at the neck, had had a duration of a good many years. It is probable that the neck of the sac in that case was a new formation which had been drawn down from the abdominal peritoneum by the sagging of the hernia and was not a part of the original processus vaginalis.

OSTEOPLASTIC AMPUTATION OF THE LEG.

OSTEOPLASTIC amputation of the leg consists in detaching a piece of bone from the internal surface of the tibia, leaving its periosteal attachment intact, and joining thereby the cut ends of the tibia and fibula, this makes a stump



Remote Results of Osteoplastic Amputation of the Leg with Posterior Flap.

capable of supporting the weight of the body. Duval has just published four of these cases with their remote results, three of them having been operated on by him, and the other by Quénu. The method used was the classical posterior flap with the bony connection between the tibia and fibula. After three years the stumps show a perfectly physiological and anatomical condition. These favorable observations show the advantage of a method which gives to the working class a useful, strong, and painless stump. The illustration is drawn from a skiagraph of one of the cases and shows the remote results of the operation S.M.D.

AN EXTEMPORIZED OPERATING ROOM,

By CAPTAIN M. A. REBERT,
YORK, PENNSYLVANIA.

LATE ASSISTANT SURGEON OF UNITED STATES VOLUNTEERS.

IN 1901, I was the surgeon to a command of over five hundred officers and men which did a great deal of "hyking" and consequently developed a considerable number of surgical cases. We occupied, as a hospital at Borongon, east coast of Samar, P. I., a reconstructed, two story, native house, the best



View in Operating Room extemporized from Tin Cans at Borongon, Samar.

in the place. It was without partitions, and it was found impossible to secure lumber from local sources, or from the supply departments at Manila. It occurred to me to utilize hard tack tins as they were emptied of their contents. These were trimmed and cleated into square sheets and nailed on frame work. In this manner we finally succeeded in enclosing a room practically metal

lined and dust proof, nine by twelve by eight feet. The door, wash stand, sterilizing tables, and shelves for dressings were also made by the men of the command from odd bits of lumber picked up on "hykes."

The photographs of the operating room thus constructed illustrate what can be accomplished in remote and isolated places to furnish suitable environment for clean surgical work.



View in Operating Room extemporized from Tin Cans, at Borongon, Samar.

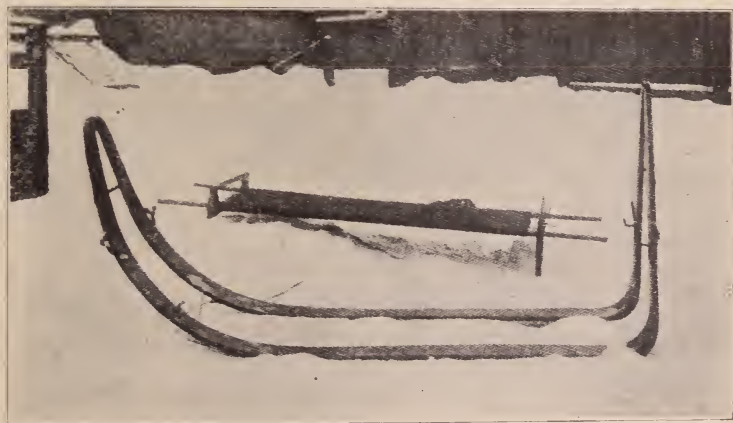
THE FLOOR, THE ENEMY IN MILITARY HYGIENE.

ALL the avoidable diseases—except typhoid,—says Granjux, (*Le Caducée*) are on the increase in the army. This increase is due to the infection of the barracks. This infection comes from the cracks in the floor. It has resisted all methods of disinfection employed up to this time. We must stop up the cracks in the flooring and make them impermeable. We must use more energetic methods of disinfection in the army than those heretofore in use.—SAMUEL M. DELOFFRE.

Contemporary Comment.

IMPROVISED SKI-SLEDGES FOR THE TRANSPORT OF THE WOUNDED.

IN the *Tidskrift i Militar Halsovard*, 1903, appears a report by A. Wahlstedt upon recent trials made at the School for Non-Commissioned Officers of the Gota Guards under Lieutenant Schartau upon the combination of ski to form transport sledges. The following method proved to be the most practicable. Four ski are placed beside each other on the ground and



Elements of Heyerdahl Ski-Sledge for Transportation of the Disabled.

a short strong stick is put through the four toe straps. With the assistance of the posterior binding straps the ski are fastened strongly to each other. In front, over the ski points, similar straps are placed and fastened firmly to the free points with firm close binding. To prevent the anterior stick from slipping from the ski points under transport, both ends of the cord used for

fastening are stretched, from the outermost binding on the ski, backward to the rear stick where they are securely fastened. To obtain firmness at the sides, a ski strap is placed on each side of the sledge so that the handle of the stick in front is inserted into the toe strap of the outermost ski, the ski points entering into the ring at the stick's lowest end. If the ski-sledge (which loaded with three ammunition boxes, weighing seventy-five kilograms all together, can be drawn by one man) is used for transportation of the disabled, the knapsack of the patient is placed



Heyerdahl Ski-Sledge for Transportation of the Disabled, Assembled.

with one edge against the ski sledge's foremost stick and the knapsack thus does service as a head protector.

The accompanying cuts speak for themselves with regard to a ski-sledge devised by Lieutenant S. A Heyerdahl of the Norwegian service and described in the last number of the *Norsk-tidsskrift for Militar Medecin*. The adaptation of the litter to the ski is most interesting and effective and promises to be of vast utility in northern lands where snow prevails for a large portion of the year and particularly in Scandinavian districts, where the use of the ski is common.—HANS DAAR.

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Editorial Expression.

DR. BENJAMIN RUSH, SURGEON GENERAL OF THE MIDDLE DEPARTMENT OF THE ARMY OF THE REVOLUTION.

WHEN the Medical Department of the Revolutionary Army was reorganized in 1777, it was desired to bring the highest class of medical men into the attendance upon the sick, for which reason high sounding titles were provided. In addition to the Director General of the Medical Department, Physician Generals of the Hospitals, Surgeon Generals of the Hospitals, and Physician and Surgeon Generals of the Army were provided in each of the military departments into which the service was then divided. Dr. Benjamin Rush, a distinguished physician of Philadelphia, was appointed Surgeon General of the Hospital in the Middle Department. This was the first appearance of the title of Surgeon General in the American service, there being such an officer for each of the three Departments. Dr. Rush held the position however for only twelve weeks, transferring to the position of Physician General upon the resignation of Dr. Walter Jones of Virginia, who had previously held that office.

A great deal has from time to time been written about Dr. Rush, who was the leading medical practitioner and teacher of his day and whose work, as a military medical officer, was greatly overshadowed by his distinguished labors as a civilian practitioner and teacher. Dr. Rush was a member of the Continental Congress of 1776 and his autograph appears among the signatures to the Declaration of Independence. He was profoundly interested in every movement for the advancement of the medical service among the Revolutionary troops, and served his state for a time as Surgeon General of the Pennsylvania Navy, which performed important services in behalf of American independence.

He was born near Philadelphia, December 24, 1745, educated at the Nottingham Academy and graduated at Princeton College in 1760. He then devoted six years to the study of medicine and was one of the first class to attend Dr. Shippen's anatomical lectures. In 1766 he proceeded to Edinburgh where he received the degree of M. D. in 1768. In 1769 he became Professor of Chemistry in the College of Philadelphia, which in 1791 was merged into the University of Pennsylvania, with Rush as Professor of the Institutes and Practice of Medicine. His fame as a medical teacher, both verbally and through the enormous volume of published works produced by him, has rendered his name famous in the annals of medicine in the United States.

His activities were not limited to medical matters, but he was broadly interested in everything which related to progress and national growth. In addition to his membership in the Continental Congress he served as treasurer of the national mint for fourteen years, his connection therewith being severed only by his death.

In educational matters he was a leader. A friend and active promoter of the University of Pennsylvania, he at the same time believed that there was need for an institution of learning farther west in his state, and it was through his agitation and earnest solicitation that a college was established in Carlisle, then on the advanced frontier of Pennsylvania, to which was attached the name of another distinguished Revolutionary patriot, John Dickinson, then the governor of the commonwealth.

He was an inveterate opponent of capital punishment, and by pen and voice actively labored toward the abolition of punishing even murder by death, his pamphlet on "An Inquiry into the Justice and Policy of Punishing Murder by Death," being an eighteenth century American classic. He was an active temperance worker and probably his brochure, "Inquiry into the Effects of Ardent Spirits upon the Human Body and Mind," was the most popular of his many literary productions, although his "Observations upon the Influence of the Habitual Use of Tobacco upon Health, Morals and Property," was also widely circulated. He was one of the earliest of the abolitionists and labored actively by pen and voice against the institution of slavery.



STATUE OF BENJAMIN RUSH,
ERECTED BY THE MEDICAL PROFESSION IN THE
CITY OF WASHINGTON.

His account of the Philadelphia epidemic of yellow fever in 1793 is perhaps his most widely known medical work, but his other works covered so extensive a field, and revealed so profound a knowledge, so quick a perception and so clear a diction, that they speedily became classics in professional literature. His descriptions of disease were marked by extreme minuteness and accuracy of detail; his work on gout, ascites, pulmonary consumption and the diseases of old age was especially noteworthy; his "Defense of Blood Letting" was a stout prop to the practice of phlebotomy; and his treatise on "Diseases of the Mind" was the great authority of the age.

Dr. Rush was a warm personal friend of Director General Morgan and an equally strong opponent of his successor and rival Director General Shippen. He addressed a letter to Congress, reflecting upon abuses present in the medical department, and later preferred against Shippen formal charges, upon which however, no final action appears to have been taken.

In addition to his distinguished public talents, where his intellectual endowments caused him to be admired and courted, he was possessed of personal characteristics which drew to him in bonds of strongest affection those who were honored by his friendship. The affability of his manner, the amiability of his temper and the benevolence of his character were ever conspicuous.

All of these personal qualities and accomplishments combined to render him easily facile princeps in the profession which he adorned, so that when the project of erecting a statue to a representative American physician in the national capital was mooted, the name of Benjamin Rush was selected without hesitation. This plan was earnestly prosecuted for many years by a distinguished successor in the national medical service, Commodore Albert L. Gihon, Medical Director, Retired, in the U. S. Navy, the fourth President of the Association of Military Surgeons of the United States,—although it was not until 1904, some years after Gihon's untimely demise that the statue was erected and dedicated by a great concourse of the physicians of America as a lasting memorial of the work of the first titular Surgeon General in the American Army, as shown in the engraving for which we are indebted to the courtesy of the *Journal of the American Medical Association*.

THE ARBITRATION COURTS FOR MILITARY MEDICAL OFFICERS IN GERMANY.

A STRIKING article in *Der Militärarzt* (interestingly epitomized by Major Laval in *Le Caducée*) gives an outline of the organization and purposes of the Arbitration Courts for the Medical Department of the German Army. The purpose of these courts is to protect the honor of the Corps in general and that of each member in particular. To secure this end:

1. They may take action along prescribed lines against medical officers whose conduct does not conform to the strict principles of honor or to the requirements of their position; and, when necessary to protect the honor of the profession, to eliminate unworthy members from the Corps.

2. Or they may proceed to clear from calumnious accusations members whose honor is unjustly attacked, when other resorts, proper in the situation, cannot be employed.

Courts of Arbitration may intervene then in case of the following circumstances:

- a.* Acts or negligences on the part of officers of the Medical Department which are contrary to strict honor or to the dignity of the profession and which thus reflect upon the honor of the whole Corps.

- b.* Cases in which medical officers ask for the decision of the Court upon a question touching their personal honor.

When a case comes within the purview of a Court and is at the same time subject to the action of penal law, the intervention of the Court should, in order to impose a penalty in accordance with the theory of honor, follow immediately after the completion of the legal process.

The following officers are subject to the Arbitration Courts:

1. All officers of the Medical Department in active service.
2. All officers of the Medical Department of the Reserve and of the Landwehr.
3. Retired officers drawing a pension and those having the right to wear the uniform.

Those who have the right to participate in the Courts of Arbitration are:

1. Medical officers of the active forces.
2. Non-active medical officers, during the period which they pass with the colors (period for instruction, etc.).

Retired military medical officers, of the third class are subject to the Arbitration Courts without the right to become members of them.

Arbitration Courts are sub-divided into:

1. Courts for medical officers ranking from Lieutenant to Lieutenant Colonel.
2. Courts for medical officers ranking as Colonel or as General officers. When the necessity arises for a Court to act upon officers of this class, permission is required from the Minister of War.

A Court for medical officers of the lower grades exists in each Division. These tribunals are composed of medical officers of the Division and are convoked by the Division Surgeon.

In the territory of each Army Corps there is a Court composed of the Chief Surgeon of the Corps and of six members, to act in case of Colonels and Generals.

In every Court of Arbitration there exists a Council of Honor which, under the direction of the presiding officer of the Court, takes up questions of honor. The senior member of the Council of Honor is the President. The junior members are two officers of the grade of the officer under investigation and one of the grade next above.

Every medical officer has the right to bring before the Council of Honor any act or facts of any kind pertaining to any member of the Medical Department of the Army or Navy which may be of such a nature as to be prejudicial to the honor of the individual or Corps. The Council of Honor, on the other hand, as soon as it is notified of a complaint notifies the Director of the Court of the fact.

At the close of the prosecution the accused is instructed by the Council of Honor as to the points upon which he should base his defense. He is asked to bring his defense before the Council

of Honor in writing; then he is expected to repeat verbally or complete this deposition before the Council in session. But the accused may also make his defense in writing through one of his comrades upon the condition that his counsel be not of a grade inferior to himself. At the close of the proceedings, the accused is notified of the place and date when the findings will be announced.

The accused has the right to object to members of the Council of Honor. The Director of the Court, in addition to presiding, is charged with the collection of the several elements of the case,—complaints, testimony and witnesses, the defendants and relatives of the accused as well as the persons implicated in the affair of honor. As relatives of the accused only father, son, uncle, nephew direct and children of sisters are accepted.

The finding of the Arbitration Court may be:

1. No action.
2. More complete instructions.
3. Acquittal.
4. Recognition that the accused has placed the honor of the Corps in jeopardy and a consequent warning as to future conduct, the Council of Honor being satisfied that he has not deserved punishment.
5. A deviation from honor satisfied by a simple change of station or duty, if the Council is convinced that the accused cannot with propriety remain in his present position.
6. A deviation from honor with aggravating circumstances necessitating dismissal from the Medical Corps, if the Council is persuaded that the accused is not worthy to continue to wear the uniform.

The Minister of War alone can revise a decision of an Arbitration Court. There is no Arbitration Court for medical officers who have completed their service (officers of the reserve and the like) but these may be summoned before a Council of Honor which acts for civilian physicians.

A special clause of the regulations of these Arbitration Courts refers to the duello. It tends to restrain its employment and recommends a charitable attitude toward one who may have deviated from the strict path of honor.

News of the Services.

Colônel George W. Adair, U.S.A., promoted from Lieutenant Colonel.

Dr. George W. Adair, U.S.A., ordered from Fort Wadsworth to Fort Banks for temporary duty.

P. A. Surgeon J. L. Angeny, U.S.N., ordered from the Culebra Naval Station home on waiting orders.

Captain H. C. Baum, N.G.N.Y., of Syracuse, N.Y., has been, at his own request, placed on the retired list after twenty-five years service.

P. A. Surgeon W. L. Bell, U.S.N., ordered to the Mare Island Naval Hospital for treatment.

P. A. Surgeon T. S. Berry, P.H. & M.H.S., promoted from Assistant Surgeon.

Surgeon T. A. Berryhill, U.S.N., ordered from the *Oregon* home to waiting orders.

Medical Director D. N. Bertolette, U.S.N., commissioned Medical Director with the rank of Captain.

Medical Inspector Henry G. Beyer, U.S.N., commissioned Medical Inspector with the rank of Commander.

P. A. Surgeon W. C. Billings, P. H. & M.H.S., ordered from Quebec, Canada to Seattle, and to temporary duty on the *Perry*.

Lieutenant C. G. Billingslea, U. S. A., granted two months leave.

Major William C. Borden, U.S.A., ordered to represent the Army Medical Department at the meeting of the Interstate National Guard Association at St. Paul, Minn.

P. A. Surgeon J. M. Brister, U.S.N., ordered from the Philadelphia Naval Hospital to the *Atlanta*.

Lieutenant Earl H. Bruns, U.S.A., appointed Assistant Surgeon U.S. Army, and ordered to duty at the Sequoia National Park.

Major George E. Bushnell, U.S.A., appointed delegate to the National Association for the study and prevention of tuberculosis.

Colonel C. B. Byrne, U.S.A., ordered to the Philippines.

Surgeon P. M. Carrington, P.H. & M.H.S., appointed delegate to the American Association for the study and prevention of tuberculosis, and granted leave for a month and a half.

Major Edward C. Carter, U.S.A., granted two months leave.

Assistant Surgeon R. B. Chapman, U.S.N., ordered from the Mare Island Naval Hospital to the Asiatic Station.

Lieutenant Walter C. Chidester, U.S.A., granted two months leave of absence.

Captain Jere B. Clayton, U.S.A., ordered from Fort W. H. Seward to Seattle, Wash.

Assistant Surgeon A. H. Clifford, U.S.N., ordered from the New York Navy Yard to the Naval Hospital, Canacoa, P.I.

Lieutenant Clarence L. Cole, U.S.A., appointed Assistant Surgeon.

Captain Walter Cox, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Lieutenant Charles F. Craig, U.S.A., reassigned to the Presidio General Hospital, and later ordered to transport *Logan* and for duty in the Philippines on arrival at Manila.

Dr. George W. Daywalt, U.S.A., on temporary duty at Jackson Barracks.

Lieutenant Samuel M. DeLoffre, U.S.A., ordered from Fort Assiniboine to Fort Schuyler.

Surgeon J. B. Dennis, U.S.N., ordered from the *Detroit* to special duty at Philadelphia and thence to report to the Surgeon General at Washington.

Assistant Surgeon P. T. Dessez, U.S.N., granted two months sick leave.

Surgeon C. M. DeValin, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander.

Lieutenant William A. Duncan, U.S.A., appointed Assistant Surgeon U.S. Army, and ordered to Fort Leavenworth, Kans.

Assistant Surgeon H. A. Dunn, U.S.N., ordered to the *Terror*, and commissioned P. A. Surgeon with the rank of Lieutenant.

Major Rudolph G. Ebert, U.S.A., ordered to inspect Medical Department at Forts Walla Walla, Wright, Worden, Casey, Flagler, Lawton, Ward, Columbia and Stevens.

Lieutenant James F. Edwards, U.S.A., granted two months leave of absence.

Lieutenant George M. Ekwurzel, U.S.A., ordered on examining duty at West Point.

Major Charles B. Ewing, U.S.A., ordered from Columbus Barracks to the Philippines, July 31, 1905.

Captain Bruce Ffoulkes, formerly Assistant Surgeon U.S.V. and recently Contract Surgeon U.S.A., has withdrawn from active service and engaged in private practice in San Francisco.

P. A. Surgeon F. M. Furlong, U.S.N., ordered to the naval medical school.

P. A. Surgeon W. M. Garton, U.S.N., ordered to the naval medical school.

Assistant Surgeon A. J. Geiger, U.S.N., ordered from the Port Royal Naval Station to the *Chesapeake*.

Lieutenant Herbert C. Gibner, U.S.A., appointed Assistant Surgeon U.S. Army, and ordered to duty at Sequoia National Park.

Colonel J. B. Girard, U.S.A., ordered home from the Philippines on account of ill health.

Colonel William C. Gorgas, U.S.A., Chief Sanitary Officer of the Canal Zone, has been assigned to duty as Acting Governor in the absence of General Davis, who has been relieved on account of illness.

Lieutenant Colonel William W. Gray, U.S.A., promoted from Major.

Surgeon M. S. Guest, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander.

Colonel John D. Hall, U.S.A., granted a month's leave.

Sir James Hanbury, Surgeon General, Retired, British Army, has been granted the distinguished service pension reward of \$500.00 a year.

Major H. S. T. Harris, U.S.A., ordered from Fort Slocum to the Philippines.

Colonel Valery Havard, U.S.A., having returned from detached service with the Russian Army in Manchuria where he was captured by the Japanese forces at Harbin, has returned to his station at Governor's Island.

Assistant Surgeon W. S. Hoen, U.S.N., ordered home from the *Oregon*.

Dr. Gustavus I. Hogue, U.S.A., ordered from Fort McDowell to the Depot of Recruits and Casuals, Angel Island.

P. A. Surgeon R. C. Holcomb, U.S.N., ordered from the *Cleveland* to the Culebra Naval Station.

Dr. Thomas G. Holmes, U.S.A., returned to Fort Wayne from leave.

Captain Reeve Beecher Howland, N.G.N.Y., of Elmira, N. Y., has been promoted from Lieutenant and Assistant Surgeon of the 30th Separate Company to Battalion Surgeon.

Assistant Surgeon H. P. Hull, U.S.N., ordered from the *Franklin* to the Philadelphia Naval Hospital.

Surgeon E. O. Huntingdon, U.S.N., ordered from the Recruiting Station at Chicago to the *Albatross*.

Captain Paul C. Hutton, U.S.A., granted a month's leave of absence.

Dr. Thomas W. Jackson, late Captain and Assistant Surgeon, U.S.V., is announced as the author of a forthcoming book upon "Tropical Diseases, with Special Reference to the West Indies, Central America, Hawaii and the Philippines."

Lieutenant George W. Jean, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Lieutenant Percy L. Jones, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Major Jefferson R. Kean, U.S.A., ordered to proceed to Panama in connection with the purchase of medical supplies for the Health Department of the Canal Zone.

P. A. Surgeon J. W. Kerr, P.H. & M.H.S., ordered from Ellis Island to Quebec.

Lieutenant Henry S. Kiersted, U.S.A., ordered for duty in Sequoia National Park.

Major Louis A. LaGarde, U.S. A., granted six weeks leave.

P. A. Surgeon R. E. Ledbetter, U.S.N., ordered from the *Dixie* to the *Detroit*.

P. A. Surgeon L. L. Lumsden, P.H. & M.H.S., ordered from Philadelphia to Baltimore and to temporary duty on the *Chase*.

Dr. William C. Mabry, U.S.A., granted one month's leave of absence.

Dr. Francis H. McCallum, U.S.A., returned to Fort D. A. Russell from temporary duty at Fort Washakie.

Assistant Surgeon N. T. McLean, U.S.N., ordered from the Boston Naval Hospital to Guam.

P. A. Surgeon A. J. McLaughlin, P.H. & M.H.S., promoted from Assistant Surgeon.

Assistant Surgeon J. D. Manchester, U.S.N., ordered from the *Petrel* to the *Princeton*.

Major Charles F. Mason, U.S.A., appointed member of Board to select a site for a new Army Post near Buffalo, and ordered on examining duty at West Point.

Lieutenant Colonel Louis M. Maus, U.S.A., ordered to inspect Medical Department of Forts Logan H. Roots, Reno and Sill.

Assistant Surgeon O. J. Mink, U.S.N., ordered from the New York Naval Hospital to the Asiatic Station.

P. A. Surgeon J. M. Moore, U.S.N., ordered to the Chicago Recruiting Stations.

Lieutenant Colonel E. B. Moseley, U.S.A., ordered to make an inspection tour of the Department of Colorado.

Assistant Surgeon E. H. Mullan, P.H. & M.H.S., ordered from Stapleton to Ellis Island.

Assistant Surgeon F. M. Munson, U.S.N., ordered home on waiting orders from Guam.

Surgeon F. S. Nash, U.S.N., ordered to the *Oregon*.

Assistant Surgeon J. L. Neilson, U.S.N., ordered home on waiting orders from Guam.

Assistant Surgeon O. M. Oman, U.S.N., ordered home from the *Frolic*.

Major William O. Owen, U.S.A., granted three month's sick leave and assigned to station at Fort Logan.

Assistant Surgeon W. D. Owens, U.S.N., ordered from the Mare Island Naval Hospital to the Asiatic Station.

Lieutenant Fred W. Palmer, U.S.A., returned to the United States Rifle Range Arcadia, Mo.

Dr. Omar W. Pinkston, U.S.A., ordered from Washington, D. C., to Fort Mansfield.

Assistant Surgeon F. E. Porter, U.S.N., ordered from the Norfolk Naval Hospital to the *Dixie*.

Major Junius L. Powell, U.S.A., ordered from Fort Hamilton to the Philippines, June 30, 1905.

Major Henry I. Raymond, U.S.A., granted two months extension of leave.

Lieutenant William W. Reno, U.S.A., ordered from the transport *Sumner* to Fort Myer, and for duty in connection with the Army and Navy maneuvers.

Major F. P. Reynolds, U.S.A., ordered for duty in the Yosemite National Park, and from the Presidio to Fort W. H. Seward.

Captain Thomas L. Rhoads, U.S.A., ordered on examining duty at West Point.

Dr. William H. Richardson, U.S.A., ordered from Cincinnati, Ohio, to Fort Sheridan.

Lieutenant C. P. Robbins, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Dr. Ernest E. Roberts, U.S.A., granted three months leave.

Lieutenant William Roberts, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

P. A. Surgeon D. E. Robinson, P.H.&M.H.S., ordered from Port Townsend to San Francisco and for temporary duty on the *Manning*.

Lieutenant E. P. Rockhill, U.S.A., granted one month's extension of sick leave, and ordered from Presidio to Fort Wingate.

Captain Frederick P. Russell, U.S.A., ordered from Fort Wingate to the Presidio.

Dr. Najeeb M. Saleeby, U.S.A., Provincial Superintendent of Schools in the Moro Province, receives special mention in the report of the Department Commander, Major General Leonard Wood.

A. A. Surgeon M. V. Safford, P.H.&M.H.S., ordered to Portland, Me., for special duty.

Lieutenant Herbert M. Smith, U.S.A., on temporary duty at Fort McDowell.

Assistant Surgeon H. W. Smith, U.S.N., ordered from the Naval Medical School to the Naval Hospital, Canacoa, P. I.

Dr. Frederick H. Sparrenberger, U.S.A., ordered from Fort Mott to Sea Girt, N. J.

Surgeon General W. F. Stevenson, U.S.A., well known as the author of *Wounds in War*, and as Professor of Surgery in the Royal Army Medical College, who was to have retired last month, has been retained on the active list until the end of July.

Assistant Surgeon A. M. Stimson, P.H.&M.H.S., ordered from the Hygienic Laboratory to Ellis Island, N. Y.

Assistant Surgeon R. E. Stoops, U.S.N., ordered from the *Pensacola* to the Asiatic Station.

Capt. Paul F. Straub, U.S.A., assigned to duty with the Isthmian Canal Commission.

Assistant Surgeon C. E. Strite, U.S.N., ordered from the Norfolk Naval Hospital to the Asiatic Station.

P. A. Surgeon A. Stuart, U.S.N., ordered to the Chelsea Naval Hospital.

P. A. Surgeon J. C. Thompson, U.S.N., ordered from the *Albatross* home on waiting orders.

Lieutenant R. M. Thornburgh, U. S. A., ordered for duty in connection with the Army and Navy maneuvers.

P. A. Surgeon H. M. Tolfree, U.S.N., commissioned P. A. Surgeon with the rank of Lieutenant, and ordered to the Naval Medical School.

Assistant Surgeon J. W. Trask, P.H.&M.H.S., ordered from Chicago to duty at the Bureau in Washington.

Lieutenant A. E. Truby, U.S.A., ordered from Alcatraz Island to Co. B, Hospital Corps, at Presidio.

Captain Willard F. Truby, U.S.A., ordered for duty in connection with the Army and Navy maneuvers,

Surgeon J. F. Urie, U.S.N., ordered to the *Pennsylvania*.

Assistant Surgeon E. A. Vickery, U.S.N., ordered from the *Southery* to the *Franklin*.

Lieutenant S. H. Wadhams, U.S.A., ordered from the transport *Lopan* to Alcatraz Island.

P. A. Surgeon U. R. Webb, U.S.N., commissioned P. A. Surgeon with the rank of Lieutenant.

Captain Henry A. Webber, U.S.A., detailed upon a Board for the examination of candidates for the Military Academy.

Surgeon W. M. Wheeler, U.S.N., ordered to the *Cleveland*.

Dr. Samuel J. White, U.S.A., ordered from Camp Lakeview to Fort Snelling and returned therefrom.

Assistant Surgeon G. L. Wickes, U.S.N. ordered from the *Lancaster* to the Asiatic Station.

Major Charles Willcox, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Lieutenant A. W. Williams, U.S.A., assigned to temporary duty in connection with the Army and Navy exercises.

Leutenant Fred W. Williams, U.S.A., ordered to the U.S. Rifle Range, Arcadia, Mo.

Captain James S. Wilson, U.S.A., assignment to duty with joint Army and Navy exercises revoked.

Surgeon R. D. Wilson, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander.

Major R. S. Woodson, U.S.A., promoted from Captain.

Captain Robert N. Winn, U.S.A., promoted to Captain.

Lieutenant John D. Yost, U.S.A., ordered to Presidio for examination for promotion.

AMBULANCE COMPETITION IN INDIA.—The silver challenge shield presented by the Prince of Wales and the Order of St. John to encourage

ambulance work among the Indian Volunteers, was won by the Calcutta Port Defence Volunteers. A silver badge of merit was conferred upon each member of the team and numerous prizes were also awarded.

CALIFORNIA NATIONAL GUARD.—In accordance with recent state legislation, a number of medical officers previously holding the rank of Captain, not having served five years, are reduced to the grade of First Lieutenant.

ELIGIBILITY OF A PORTO RICAN TO APPOINTMENT IN THE MEDICAL DEPARTMENT.—The Judge Advocate General of the Army has decided that a Porto Rican is eligible for appointment as Assistant Surgeon in the Army in the discretion of the Secretary of War.

INTERNATIONAL MEDICAL ASSOCIATION AGAINST WAR.—The latest freak association announced was organized in Paris at the house of Dr. Rivière. The Association is proposed to be international and a Congress is planned to meet in 1907.

ILLINOIS NATIONAL GUARD examinations for medical officers were held at Rush Medical College on the 29th of April, with Colonel Nicholas Senn, Lieutenant Colonel G. Paul Marquis, Major Charles Adams and Captain S. C. Stanton as the Examining Board.

JOURNAL OF FIRST AID.—A First Aid Journal is to be issued at an early date as the organ of the American White Cross Association in Chicago.

MASSACHUSETTS VOLUNTEER MILITIA MEDICAL SCHOOL. The Proceedings of the Massachusetts Volunteer Medical School, held in December, 1904, are published in an interesting pamphlet containing papers by Lieutenant Colonel Foster upon the Manoeuvres at Manassas; by Major J. F. Harvey on Preventative Therapeutics; by Major Henry S. Dearing on the Examination of Recruits; by Thomas L. Jenkins on the Hygienic Aspect of the Blanket Roll; by Major E. W. Gates on the Nutritive Value of Foods; by Major Joseph S. Hart on the Inspection and Preservation of Meat; by Lieutenant J. W. Cummin on the Health of Troops in the Field; by Lieutenant H. H. Hartung on the X-Ray in Military Surgery; and by Lieutenant Arthur May on Veterinary Sanitation.

MEDICAL ATTENDANCE TO RUSSIAN PRISONERS in Japan is to be rendered by captive Russian medical officers, who are to be paid by the Japanese Government for their services in this capacity.

THE MORTAR AND PESTLE.—The Hospital Stewards of the United States Navy, on duty in the vicinity of Boston, have organized an Association of the Hospital Corps of the United States Navy, membership in which is open to all members of the Naval Hospital Corps. They inaugurated last month a monthly paper called the Mortar and Pestle as the official organ of the organization, a copy of which has reached this office and has been read with much interest.

THE PHILIPPINE MONTHLY is an interesting publication, the first number of which is dated May 1905, devoted to the interests of the Philippines

and those of the enlisted men serving there in particular. The first number is a very handsome issue and contains much of interest and value.

RELATIVE RANK OF ASSISTANT SURGEONS IN THE ARMY.—It has been decided that an Assistant Surgeon, held over for promotion to the grade of Captain on account of his failure to pass the requisite examination, is passed over by such medical officers as may have meanwhile attained the grade of Captain after successful examination. This decision was made in the case of Lieutenant Henry D. Thomason, who was passed over by Lieutenant Ralph S. Porter, under the circumstances given above.

RIGHT OF CONTRACT SURGEONS TO WEAR CAMPAIGN BADGES.—It has been decided that Contract Surgeons are entitled to wear campaign badges only when they have been earned by service as a commissioned officer or enlisted man of regulars or volunteers. When earned by service under contract they may not be worn.

SANITATION ON THE ISTHMUS.—The Isthmian Canal Commission, at its meeting held in Washington, May 3, 1905, approved the estimates submitted by Col. W. C. Gorgas, chief sanitary officer and favorably recommended by Commissioner Magoon. These estimates provide for an allotment of \$656,444 for 1905-06, for the payment of salaries and wages in the health department, including professional employes and skilled and unskilled labor, a net increase of \$150,140 over the allotments for this year. This allotment does not include the cost of construction of necessary buildings and hospitals or the purchase of medical supplies and other necessary equipment, but is merely for the payment of the professional corps and the large number of laborers engaged in sanitation. As the expansion of force involves increase of duty and responsibility on the heads of the several offices and institutions included within the department of health, the commission authorized approximately a 15 per cent. increase in the salaries of the heads of the departments as follows:

Chief sanitary officer.....	\$10,000
Director of hospitals.....	8,000
Chief quarantine officer.....	7,000
Superintendent of Ancon Hospital.....	7,000
Superintendent of Colon Hospital.....	5,000
Health officer of the Panama health office.....	3,600
Health officer of the Colon health office.....	3,000
Resident physicians of emergency hospitals along the line of the canal.....	3,000
Chief sanitary inspector.....	3,600

The commission also authorized the immediate erection of an additional hospital building in Colon at the estimated cost of \$40,000.

Current Literature.

TRANSPORT OF THE SICK AND WOUNDED IN WAR *

THE prize essay of Colonel Bernardo and Major Brezzi was selected from five memoirs submitted in competition for the Riberi prize of 1904, and forms a thorough discussion of the subject of transportation of the disabled in war, touching upon the various complications which may interfere with satisfactory transport; discussing the probable mortality in connection with transportation; referring to the arrangements of personnel and material desirable to secure the best results; and considering the conveniences which may assist in attaining the most satisfactory outcome. The work is comprehensive and interesting. It approaches the subject from a side rather different from that taken by Longmore in his well known English work and may well supplement and complete the information there available.

BRYANT'S OPERATIVE SURGERY.†

NO work in operative surgery has been subjected to greater development than the well known treatise of General Bryant. First issued as a number in a cheap medical library, it has been from time to time reissued and revised until it now appears as a representative of the highest type of its class. In the fourth edition a large number of additions bring it up to the latest date in operative work, while many of the subjects formerly discussed have been extensively elaborated. The new surgery is fully represented, both in mechanics and technique. No up to date surgeon's library can be complete without this valuable work.

**Lo Sgombero degli Ammalati e dei Ferite in Guerra.* Memoria di Dottori LUIGI BERNARDO e GIUSEPPE BREZZI. 8vo.; pp. 276, illustrated with numerous cuts and plates. Roma, Presso il Giornale Medico del Regio Esercito, 1905.

†*Operative Surgery.* By JOSEPH D. BRYANT, M.D. Fourth edition. 8vo; 2 volumes; pp. 1527, with 1793 illustrations, 100 in colors. New York, D. Appleton & Co., 1905.

DEAVER ON APPENDICITIS.*

THE enlarged third edition of Deaver's Appendicitis is just off the press and ready for distribution. The reader will find that, when compared with previous editions, there are marked changes in the author's views, which have been revised to correspond to his later experiences.

He does not now advise the removal of the appendix in every case, as in previous editions, realizing that every one has not had his ripe experience and dexterity.

In regard to the removal of the appendix in certain walled off cases of abscess with adhesions, he quotes Murphy as follows: "When the patient is apparently overwhelmed with intoxication from a circumscribed or diffused peritonitis, or inflammatory process, I content myself with making a simple incision in the abdomen and relieve the pus tension by the insertion of a large drainage tube without irrigation, without sponging and without manipulation of the tissues. On the other hand when the intoxication is not severe, even when the quantity of pus is large, circumscribed or not circumscribed the appendix is removed." The reviewer believes that Deaver has done well to make this exception as he has a large personal following among surgeons and there are many that lack his skill and dexterity who will be less inclined to remove the appendix in this class of cases than heretofore, which will result in more recoveries and a lessened mortality rate for these surgeons.

He has modified his opinions as to the time of operation. In the early stages he strenuously insists, as he always has done, on the prompt and immediate removal of the appendix; but "when the infection from the appendix surges through the peritoneal cavity without check or hindrance, without effusion or exudate, we have to deal with a form of peritonitis, intensely deadly, and where but little is gained by immediate operation. . . . To remove

***Appendicitis.** Its History, Anatomy, Clinical Etiology, Pathology, Symptomatology, Diagnosis, Prognosis, Treatment, Technique of Operation, Complications and Sequels. By JOHN B. DEAVER, M.D. *Third edition*; roy. 8vo.; pp. 492, with 64 full page plates. Philadelphia, P. Blakiston's Son & Co., 1905.

the source of systemic infections we should have to remove the entire peritoneum, moreover there is nothing to drain. In such instances operation should not be undertaken until all acute symptoms have subsided. In these cases the treatment should be rest, ice to the abdomen, all foods withheld by the mouth and rectal enemata and alimentation be given."

The initial treatment of an attack has been greatly changed. "The battle of opiates vs. purgatives has been so thoroughly waged during the last decade or two that it seems useless to continue the discussion further * * * * for many years I was myself an ardent advocate of the treatment of appendicitis both before and after the operation by means of saline purgatives * * * * but I have come to regard the use of purgatives as not only useless in the majority of cases, but as positively harmful in some." The use of a laxative is advised only in the early stages of the attack where there is the history of the ingestion of indigestible food.

These quotations in the main represent the change of Deaver's views and the present status of the treatment of appendicitis. A number of chapters have been added, the principal ones being on Appendicitis in Children and Typhoid Appendicitis. Many others have been rewritten and enlarged.

The book is a standard treatise on the diseases of the appendix representing the accumulative experience of years and the results of several thousand operations. It has been greatly enlarged, practically rewritten and embellished by numerous plates many of which have been engraved especially for the present edition. It should be on the shelf of every doctor, whether physician or surgeon. The reviewer personally considers it one of the most valuable ones in his library. The appearance and general make up of the volume is very attractive, so much so that we congratulate the author on its excellence of contents and the publisher on its appearance.—A. R. ALLEN.

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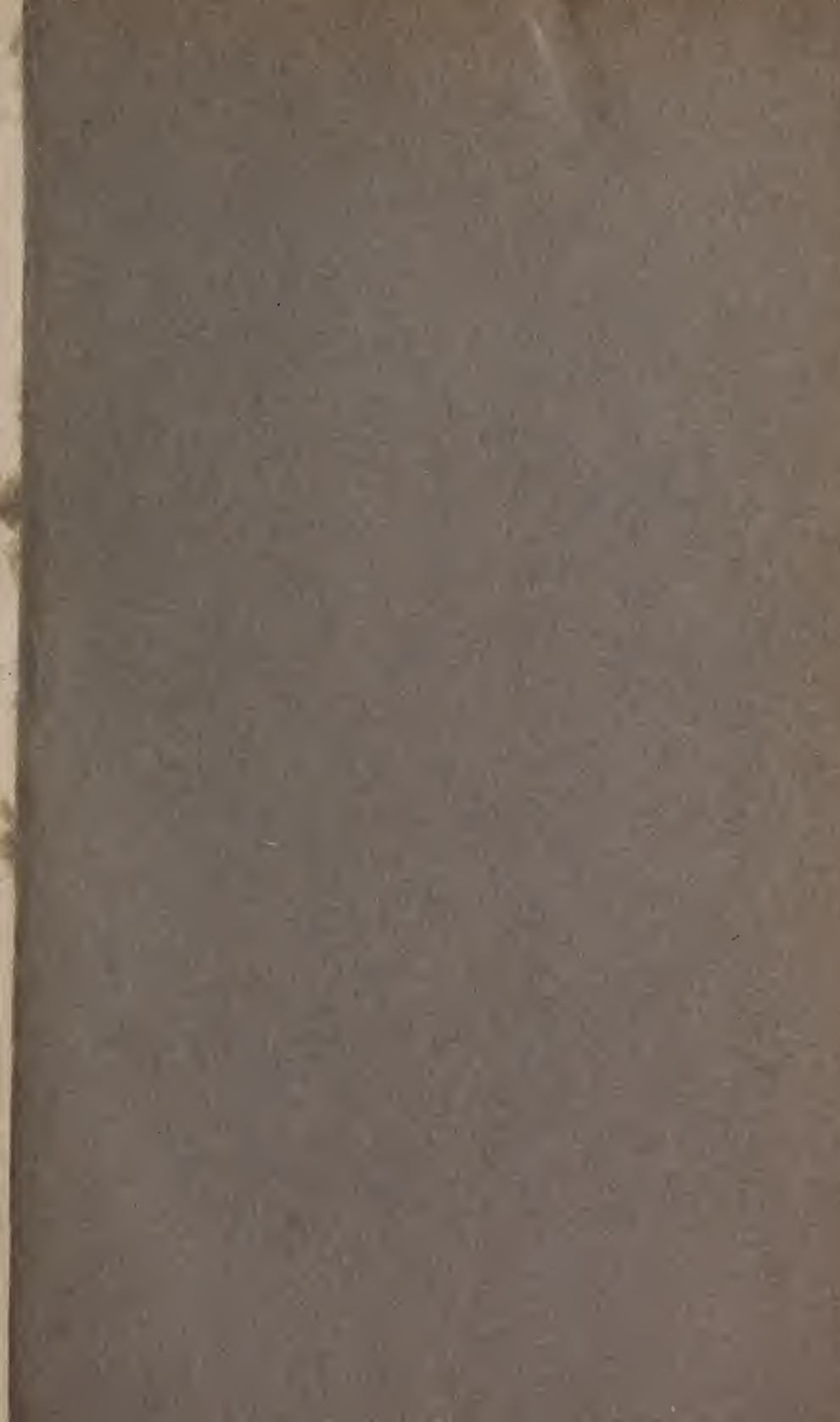
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